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The Treatment of Craniocerebral Injuries and Prevention of Anoxia

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SUMMARY

Even mild head injuries may cause cerebral swelling and vascular alterations, including vasoparalysis and increased vascular permeability. The severer the injury, the more pronounced these changes. They may cause death.

Maintenance of adequate oxygen supply to the brain is the most effectual means of preventing or reducing the severity of this secondary effect of cerebral trauma, and the preservation of a good respiratory exchange is therefore essential in a patient who is comatose as a result of a head injury.

The commonly employed measures such as an oral airway, suction and oxygen therapy may be tried first, but if the patient continues to have respiratory distress or cyanosis, an intratracheal tube should be employed for 24 hours; and then if there is no improvement, tracheotomy should be carried out. If the injury is severe, tracheotomy from the beginning may be a life-saving measure.

clear understanding of the pathologic processes and alterations in physiologic factors that occur in patients with acute intracranial injury is essential.

PATHOLOGIC PROCESSES IN CEREBRAL INJURY

Concussion: It is probable that loss of consciousness may be brought about in several ways. The comatose state may be associated with rapidly increasing intracranial pressure such as that caused by extradural and subdural hemorrhage. In such cases the fundamental mechanism is in all likelihood related to ischemic changes.⁶ Transient disruption of consciousness without hemorrhage may be caused by severe jolt of the brain, as when the moving head suddenly strikes an immovable object or when the head is struck by a moving object. It is to injuries of this kind that the term "cerebral concussion" is applicable. There is an accumulating body of experimental evidence which indicates that in such cases a brief but pronounced rise in intracranial pressure may be the fundamental mechanism which initiates the alteration in consciousness.^{4, 7} Furthermore, even though there may be no gross pathologic changes associated with injury of this kind, it has been shown that cerebral swelling occurs, the degree of which roughly corresponds to the severity of the concussion.⁸ It is thus apparent that even in the mildest form of injury to the brain there is sufficient alteration in physiologic process to be of clinical importance.

Contusion and Laceration: These terms describe pathologic changes in the brain ranging from small petechial and perivascular hemorrhages to gross hemorrhagic lesions and disruption of brain tissue. Of importance from a therapeutic standpoint are associated changes in both the parenchyma and vascular structures of the brain. The vascular changes

THE great majority of cases of injury to the cranium and its contents are dealt with by physicians not devoting their main interest to the special field of neurological surgery. To provide therapy based on sound physiologic principles and to recognize at an early stage the complications of acute head injuries which require surgical intervention, a

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have been emphasized by Scheinker and Evans⁵ who have grouped them, by stages, as follows: (1) Vaso-paralysis, generalized or local, associated with increased permeability of the vessel walls for serous fluid and erythrocytes; (2) degeneration and necrosis of the vessel walls; and (3) chronic vascular changes. The early changes are of importance in cases of acute injury. It has been shown^{1, 2} that mechanical irritation of the vascular tree results in constriction of the capillaries and smaller vessels of the cerebrum, which is followed by paralytic dilatation of the terminal segments with continued constriction of the proximal arterioles. Subsequently, due to resulting interference with the cerebral blood supply and accompanying stasis, the oxygen supply to the parenchyma as well as to the vessel walls is compromised, leading to accumulation of fluid within the tissues both locally and generally. Thus a train of events is initiated which results in cerebral swelling. As has been stated, swelling may occur even in the milder injuries associated with cerebral concussion. If this process continues unabated, the end result is actual necrosis of varying degree of both parenchymal and interstitial tissue.

In the present state of knowledge it is not possible to be certain whether increased vascular permeability is the primary cause of cerebral swelling or whether other mechanisms may play a role. In any event, there can be no question that a diminished oxygen supply, if not initiating such changes, can certainly augment them. Furthermore, it is reasonable to assume that in the early stages of the process this abnormal condition may well be reversible. Therefore, the treatment and prevention of hypoxia become paramount in caring for the patient with acute head injury.

Increased Intracranial Pressure: For many years increased intracranial pressure was considered to be the major problem in the treatment of head injuries, and even in Hippocratic times there was controversy as to whether purely expectant treatment or the more radical procedure of trephination should be utilized. There can be no question that when the increased pressure results from a localized collection of blood from either an extradural or subdural hemorrhage, operative intervention is necessary. When, however, the increased intracranial pressure occurs as the result of swelling of the brain, it is now generally held that operative decompression is inadequate and that therapeutic efforts should be directed toward maintaining adequate oxygen supply to the brain and to the maintenance of fluid and electrolyte balance.

TREATMENT OF BRAIN INJURY

For concussion per se, since it is a transient episode, no specific therapy is necessary. At the other extreme, there is little that can be done to restore the function of tissue which is structurally damaged at the time of injury. However, on the basis that the important alterations occurring with cerebral swelling and contusion may be caused by vascular

alterations and hypoxia and thus may be reversible, specific therapeutic measures should be employed to minimize these changes.

Maintenance of Systemic Circulation: Since the brain is dependent upon the systemic circulation for an adequate supply of blood, shock when present must be combated vigorously by such measures as infusion of blood and fluids to maintain the volume of blood.

Prevention of Hypoxia: The vascular and parenchymal changes which lead to cerebral swelling not only initiate but are also augmented by cerebral hypoxia, and thus a vicious cycle of increasing swelling, vascular insufficiency and hypoxia is established. Since it is to such departures from the normal state that treatment must be directed, the prevention of hypoxia becomes of primary importance. The first and foremost measure in this direction is the maintenance of an adequate airway, since hypoxia follows the mechanical respiratory obstruction due to retained secretions.

The following are important considerations in dealing with the problem of proper respiratory exchange in unconscious patients:

1. Position in bed. There is better drainage of secretions from the bronchial tree with the patient in the lateral position on a flat bed; but it is also desirable to facilitate venous return from the head in order to lessen intracranial pressure, and for this purpose the head of the bed should be elevated. It is usually necessary to compromise upon intermittent lowering of the head of the bed to permit drainage of secretions.

2. Provision of an oral airway by which the tongue is held forward and pharyngeal obstruction prevented.

3. Intermittent aspiration of the pharynx and upper trachea. It is not sufficient merely to remove the secretions from the posterior pharynx; a small rubber catheter should be carefully inserted into the upper trachea and gentle suction applied.

4. The use of oxygen by means of nasal catheter, mask, or oxygen tent.

5. Intermittent bronchoscopy in order to aspirate retained bronchial secretions.

6. The use of an endotracheal tube (which, however, ordinarily cannot be kept in place for longer than 48 hours).

Recently Echols³ and co-workers advocated resort to tracheotomy if the measures already mentioned do not provide an adequate airway and respiratory exchange. Results obtained with this procedure were reported to have been excellent.³ The character of respiration as well as other factors in patients who have severe cerebral injury are such as to indicate the use of tracheotomy. Respiration often is labored, the patient is usually unable to swallow, there is an augmented respiratory secretion secondary to vagal stimulation, and frequently, in spite of the usual measures, the patient is continuously cyanotic. With

more severe degrees of injury, respiration may be shallow and inadequate. Following tracheotomy there is usually immediate and dramatic improvement not only in the respiratory effort of the patient but also in the color of the skin and in the state of consciousness. There are other advantages to this method of providing an adequate airway. As the tracheobronchial tree can be quickly and easily aspirated and kept free of secretions, the head of the bed can be kept elevated constantly to promote better venous return from the cranium and a reduction of intracranial pressure. Also, the hazard of aspiration of vomitus is obviated. The relief of partial respiratory obstruction reduces the attendant elevation of intrathoracic venous pressure and secondarily reduces intracranial venous pressure. The reduction of increased carbon dioxide tension in the arterial blood and the increase in oxygen tension reduce cerebral vasodilatation, since increased carbon dioxide tension and decreased arterial oxygen saturation are the most potent cerebral vasodilators known. Intracranial pressure is thereby diminished. Finally, by avoiding prolonged cerebral anoxia, irreversible damage to the neurones is minimized. This lessens the period of coma and the degree of residual neurological deficit.

A reasonable program for preventing hypoxia in the comatose patient with a head injury would appear to be as follows: First, conservative measures such as proper position in bed, provision of an oral airway, and administration of oxygen. If these measures do not reduce restlessness, labored respirations and cyanosis, and if the period of unconsciousness can be anticipated not to extend beyond 48 hours, an endotracheal tube may be considered. However, if the patient is more seriously injured it is better to carry out tracheotomy immediately, or if at the end of 24 hours there has been no improvement in the patient's condition, the endotracheal tube can be withdrawn and tracheotomy employed.

Control of Temperature: Hyperthermia frequently is present in patients with severe acute cerebral injury, and the higher the temperature the greater the liability that the patient will die. Hyperthermia may be caused by either direct trauma to the brain stem or indirect involvement of the brain stem through circulatory deficiency resulting from transtentorial herniation of the temporal lobes. Interference with the normal temperature-regulating mechanism results in either case. The increased temperature increases the metabolic and oxygen requirements of tissues which may already be suffering from oxygen want. If the hyperthermia is unchecked, peripheral circulatory collapse occurs, which further reduces oxygen supply to cerebral tissues.

Hyperthermia should be vigorously and persistently combated. Bed clothes should be discarded.

The patient should be sponged frequently with tepid water or alcohol, and ice packs should be applied to the axillae, the groin, and great vessels of the neck. If the temperature does not decline, all clothing should be removed from the patient and air fanned over him continuously. Acetylsalicylic acid in doses of 0.6 gm. to 1 gm. inserted in the rectum may be of some help.

Fluid Balance: The physiologic requirements of the patient are best served by maintaining fluid intake to offset all losses via the lungs, perspiration, the kidneys, and vomiting. Two to three liters of fluid per day usually suffices. It is believed that dehydrating the patient does not reduce cerebral edema sufficiently to warrant inviting the disturbances in fluid and electrolyte balance which necessarily follow. Likewise, flooding the patient with excessive amounts of fluid accomplishes no useful purpose and does more harm than good. Sodium intake should be limited since large amounts would hold fluid in the tissue. If fluids are administered parenterally, all but one of the daily intravenous infusions should be free of sodium.

If there are localized accumulations of blood or fluid outside the dura mater or beneath it or inside the brain, they may cause pressure that enhances the physiologic disturbances already present. Early diagnosis and prompt removal are necessary. The diagnosis of a space-occupying accumulation of fluid is often difficult, but the presence of such lesions may be suspected if the state of "unconsciousness" deepens and neurological symptoms referable to focal pressure develop progressively.

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The Topical and Systemic Use of Cortisone in Dermatology

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SUMMARY

Part I of this report deals with the topical use of cortisone in a variety of skin diseases. Fifteen patients with chronic discoid lupus erythematosus, four patients with necrobiosis lipoidica diabetorum, four with psoriasis, one with lichen planus and one with granuloma annulare were treated with cortisone ointment. All the patients with chronic discoid lupus erythematosus had some degree of improvement. In two patients with chronic lupus erythematosus, complete clearing of the eruption occurred. In four patients with necrobiosis lipoidica diabetorum remarkable involution resulted. Patients with psoriasis, lichen planus and granuloma annulare were not benefited.

Part II deals with the systemic use of cortisone. Eight patients with severe serum sickness-like penicillin reaction responded dramatically to parenterally administered

cortisone. In two cases of pemphigus vulgaris and one case of Sulzberger-Garbe disease, the disease was kept in remission with cortisone administered intramuscularly as well as orally. Partial improvement resulted in a case of localized myxedema associated with malignant exophthalmos. Two patients with exfoliative dermatitis due to therapy with heavy metals responded dramatically to cortisone. No beneficial effects were noted in patients with chronic urticaria and atopic dermatitis.

The systemic use of ACTH and cortisone in dermatology at present should be confined to patients with known fatal or hopelessly incapacitating diseases and to patients with extreme hypersensitivity reactions which may be protracted or life-endangering, and which can be controlled or cured with a relatively small total dosage of the agents in a short time.

THE introduction of adrenocorticotropic hormone (ACTH) and cortisone into clinical medicine, and its correlation with Selye's²³ work on the general adaptation syndrome, is no doubt the initiation of a new era in dermatology, if not in all medicine. Therapeutic application of these steroids is still in its infancy, but what perhaps is most momentous is its stimulus to clinical research. The results of experimentation in the basic sciences and in clinical medicine offer great promise of explaining many of the vaguely understood morbid processes of the skin.

The purpose of this presentation is to report the authors' clinical experience in the use of cortisone in the treatment of a variety of dermatoses, after more than a year's study. The first part of this report will deal with the use of cortisone topically, and the second part will be confined to observations on systemic administration. The presentation will be concluded with a synopsis, in table form, of the present-day status of ACTH and cortisone in dermatology.

Eight of the cases reported upon herein were presented at recent meetings of the Los Angeles Dermatological Society.

From the Departments of Dermatology, Cedars of Lebanon Hospital and Los Angeles County General Hospital.

Presented before the Section on Dermatology and Syphilology at the 80th Annual Session of the California Medical Association, Los Angeles, May 13 to 16, 1951.

Cortisone in Carbowax was supplied by Merck & Co.

TOPICAL APPLICATION OF CORTISONE

The favorable results achieved by ophthalmologists^{22, 29} in the treatment of ocular inflammatory disease with cortisone applied locally suggested that regressive changes in certain dermatoses might follow topical application of the hormone. Due to the difficulty in obtaining cortisone, and because it was felt that more could be learned by a concentrated study on a few appropriate recalcitrant dermatoses (preferably the so-called collagenous diseases), the local use of cortisone was limited primarily to chronic discoid lupus erythematosus. The other dermatoses treated included necrobiosis lipoidica diabetorum, granuloma annulare, psoriasis, and lichen planus.

Originally cortisone was used in the concentration of 3.3 mg. and 5 mg. per gram of Neobase®. Shortly after this study was begun, however, Carbowax® was substituted for the vehicle, and later a concentration of 25 mg. per gram of Carbowax was used.

Chronic Discoid Lupus Erythematosus

Since the original account¹⁵ of the authors' experience in the treatment of chronic discoid lupus erythematosus with topical cortisone was written, the number of cases in the series has been increased; 15 patients with this disease were under treatment at the time of the present report. The duration of therapy ranged from six to 29 weeks. In the patients

studied, the duration of the disease ranged from six months to 17 years, and previous therapy had included the usually employed topical, oral and parenteral medication. Except in three cases (Cases 1, 7 and 15) the group studied were supplied with 25 mg. of cortisone per gram of Carbowax shortly after the investigation was begun, although some at first had been given ointments containing 3.3 mg. and 5 mg. per gram (Table 1). They were instructed to massage the ointment into each of the lesions three to four times daily. In the majority of patients maximal improvement did not occur until treatment with ointment of the higher concentration was begun. Only four patients had pronounced improvement. Except for one small segment of an original patch, one patient (Case 7, Table 1) had complete healing with pigmentation. However, when treatment was discontinued after involution, new small lesions developed in new locations on the face. One patient (Case 1) had complete clearing. In the two other patients (Cases 6 and 12) who had pronounced improvement, the involution was estimated to be over 95 per cent. The rest of the patients had involution ranging from 10 per cent to 75 per cent. In no instance was there untoward reaction either locally or systemically during the period of observation, nor was there any alteration of chemical contents of the blood. Tumid lesions appeared to respond better to topical application of cortisone than did hyperkeratotic lesions. The first change noted after inunction of cortisone was paling, followed by a reduction in the thickness of the lesion. In some patients the eruption took on a glazed appearance. In some instances healing occurred with pigmentation.

Maximal improvement in all the patients occurred within a period of one month after the use of corti-

sone ointment. Except in one patient (Case 7) in whom progressive steady improvement occurred until complete healing, little change was noted in patients continuing to apply cortisone ointment after a period of two months. In patients with flat or hyperkeratotic lesions, there was no more than slight improvement at any time.

REPORT OF A CASE

In the following case (Case 7, Table 1) involution of chronic discoid lupus erythematosus occurred following topical therapy with cortisone.

The patient, a 39-year-old Japanese male, was first observed June 17, 1950. There were erythematous annular and oval-shaped lesions on the face, neck and upper back. Adherent scaling and telangiectasia were noted in some of these areas and there was atrophy in a few patches. A clinical diagnosis of typical chronic discoid lupus erythematosus was made. The eruption had started on the nose in 1945 and later spread to the cheeks, forehead, neck, ears and upper back. In a complete medical and laboratory study carried out in May 1950, no other abnormality was noted.

From June 17, 1950, to Sept. 11, 1950, the patient was given Bistriate®, crude liver extract, bismuth subsalicylate injections, applications of carbon dioxide ice, and tocopherols; and a 5 per cent para-aminobenzoic acid sun filter cream was prescribed for topical application. There was partial improvement in some of the lesions but most of them progressed. On Sept. 11, the patient was given an ointment containing 3.3 mg. cortisone per gram of Neobase and instructed to massage it into the affected areas three times daily. By Oct. 13 there was about 50 per cent improvement; the lesions were becoming pigmented and were undergoing involution. By Oct. 21 the lesions on the back had healed without pigmentation and those on the cheeks had healed with pigmentation. Lesions below the left eye were about 75 per cent involuted and were partially pigmented, while in a lesion in the left retro-auricular region there was evidence of the beginning of healing for the first time. By Oct. 28 the lesions below the eyes were completely

TABLE 1.—*Chronic Discoid Lupus Erythematosus*

Case No.	Age	Sex	Location of Lesions	Duration	Severity	Concentration Mg. of Cortisone Per Gram of Base	Weeks of Treatment	Degree of Improvement*
1	73	F	Face	10 years	Pronounced	3.3 and 5	6	Cleared
2	35	F	Face	10 years	Moderate	5 and 25	29	Moderate
3	52	F	Face, neck, arms, ears	2 years	Moderate	5 and 25	29	Moderate
4	45	F	Face	8 years	Pronounced	3.3 and 25	25	Moderate
5	41	F	Face	2 years	Mild	5 and 25	18	Slight
6	29	F	Face, scalp	10 months	Pronounced	25	8	Cleared
7	39	M	Face, neck back	5 years	Pronounced	3.3 and 5	17	Pronounced
8	44	F	Face	4 years	Pronounced	25	12	Moderate
9	23	F	Face	3 years	Pronounced	3.3 and 25	12	Moderate
10	30	F	Face	3 years	Moderate	3.3 and 25	12	Moderate
11	32	F	Eyelids	7 years	Moderate	25	10	Moderate
12	42	F	Lips and perioral region	15 years	Pronounced	25	13	Pronounced
13	40	M	Scalp, face	2½ years	Moderate	25	6	Slight
14	33	M	Lips, chin and nose	17 years	Pronounced	25	9	Slight
15	35	F	Cheeks, nose	6 years	Pronounced	10	8	Moderate

* 0-50%, slight; 50%-75%, moderate; 75%-100%, pronounced.

healed and there was only slight erythema remaining in the involved areas in the left retro-auricular region. By Dec. 2 the degree of improvement was 95 per cent.

On Jan. 9 the patient was presented at the meeting of the Los Angeles Dermatological Society to demonstrate the dramatic involution of the eruption. In some of the areas complete healing with pigmentation had occurred while in others pigmentation had decreased and a few remaining spots were atrophic.

The use of the ointment was discontinued at that time. When the patient was next observed, April 14, 1951, all previously treated lesions remained healed except for one residual 8 mm. patch on the left side of the neck. There was slight evidence of fading in residual areas of pigmentation. However, within the ensuing month four new lesions, 4 to 6 mm. in diameter, appeared in other locations on the face.

Necrobiosis Lipoidica Diabeticorum

Four patients with necrobiosis lipoidica diabetorum confirmed by biopsy were treated with cortisone ointment in the concentration of 25 mg. per gram of base. The patient in whom the disease was the most severe had almost complete involution of lesions after the application of cortisone ointment over a period of eight weeks (the case is reported in detail in following paragraphs). Aside from the dramatic involution of the lesions in this case, the most striking feature was the healing of indolent ulcers within the involved area five days after the institution of treatment. Another patient had 90 per cent improvement after the first seven weeks of application of cortisone ointment. The patient discontinued use of the ointment for a period of three months, and when he was next observed there was no regression of the patch of necrobiosis. A third patient had definite improvement after only two weeks of using the ointment, but unfortunately was lost to further study. In a fourth patient, who at the time of this report had only recently come under the authors' care, there was 75 per cent involution of the lesion after only two weeks of cortisone inunction.

The favorable response noted in all of these patients is significant in view of the notoriously recalcitrant nature of this dermatosis. The method used is the only form of treatment of which the authors are aware that has ever resulted in such rapid response.

REPORT OF A CASE

The patient, a 24-year-old housewife, had diabetes mellitus of 12 years' duration. It had been controlled with insulin during this period. About five years previously a red patch had appeared on the lower part of the left leg and it gradually became larger. About ten months previously the lesion became ulcerated and the patient was given Terramycin®, which had no effect upon the ulcer. The lesion was 8 cm. long and 3 cm. wide, with an L-shaped extension at the lower pole. The borders of the lesion were violaceous; the center was yellowish-orange and contained telangiectatic vessels. At the superior and inferior poles of the lesion there were small superficial ulcers covered with a thick crust. Biopsy confirmed the clinical diagnosis of necrobiosis lipoidica diabetorum.

During the first week of November 1950, cortisone ointment (3.3 mg. per gram of Neobase) was prescribed, and the patient was instructed to massage it into the lesion four

times daily. The first change noted was dramatic healing of the ulcers by the fifth day. It was then noted that the redness and the yellow-orange color of the lesion were beginning to fade for the first time in five years. On Dec. 8 a more concentrated ointment was substituted (25 mg. of cortisone per gram of Carbowax). During the next two weeks, more pronounced involution was noted. On Jan. 9, 1951, the patient was presented at the monthly meeting of the Los Angeles Dermatological Society. At that time the lesion was smaller in area and there was a reduction of the thickness of the lesion so that when the skin was grasped between the fingers, wrinkling was observed. There were cribriform scars at the site of ulceration and dusky pigmentation of the previously violaceous periphery. The yellow-orange color at the center had changed to light pink. Therapy was discontinued for two months without regression. Cortisone inunction was then resumed and additional involution occurred. When the patient was last observed, there remained only slight tan pigmentation, and atrophic scars at the site of the previous ulcers.

Topical Use of Cortisone in Other Dermatoses

An attempt was made to observe the effects of topical application of cortisone in a small group of cases of unrelated dermatoses. Four patients with psoriasis, one with lichen planus and one with granuloma annulare applied cortisone ointment in the concentration of 25 mg. per gram of Carbowax. The eruption in these patients remained unaffected after therapeutic trial of at least one month.

COMMENT AND SUMMARY OF TOPICAL APPLICATION

At the time of this report, the period of investigation of the use of cortisone topically exceeded seven months. There is better basis for evaluation of the efficacy of topical use of cortisone in the group of dermatoses studied than was available at the time of the authors' previous report.¹⁵ Favorable response ranging from minimal to complete clearing of lesions occurred in chronic discoid lupus erythematosus and necrobiosis lipoidica diabetorum. No effect was observed in the lesions of psoriasis, lichen planus and granuloma annulare.

It is the authors' belief that if no improvement occurs after eight weeks of application of cortisone ointment, further change is unlikely. From the results of the present study cortisone ointment is obviously not a cure for chronic discoid lupus erythematosus, for healing occurred only at the site of the lesion treated. It could not be expected that topical application of cortisone would prevent the appearance of new lesions. (New eruptions occurred in one case.) The improvement obtained with this form of therapy suggests that it may be used as an adjunct with other methods of treating the disease.

The dramatic effect of topical application of cortisone in all of the patients with necrobiosis lipoidica diabetorum is most encouraging.

An explanation for the effect of cortisone applied topically is wanting. Whether cortisone thus used acts by affecting the permeability of blood vessel walls, the collagenous fibers directly or its intermediary substance, or by some enzymatic action,

remains to be established. Beneficial effects of locally applied cortisone have been established by ophthalmologists who have reported excellent results in ocular inflammatory conditions after topical instillation²⁹ as well as with subconjunctival injection²² of cortisone. Jones and Meyer¹⁴ experimentally were able to inhibit vascularization of rabbit corneas following alkali burns by previous subconjunctival injection of cortisone. Castor and Baker⁶ demonstrated that regressive changes in the normal skin of the rat can be produced by local application of cortisone in alcoholic solution. They noted thinning of the epidermis, cessation of hair growth, shrinking of sebaceous glands and reduction of dermal thickness by loss of collagen fibers, but no effect on the elastic tissue. They also noted that fibroblasts and other cells of the dermal connective tissue decreased in number. An interesting observation on their part was that after 180 days of therapy, a refractory state developed and hair began to grow.

The fact that, in the present series, improvement of lupus erythematosus progressed up to a certain point and then ceased suggests that a similar refractory state may have developed. Grant, Cornbleet and Grossman⁹ were not able to duplicate the conditions observed by Castor and Baker. Grant and co-workers applied adrenal cortex extract in 25 per cent alcoholic solution to five human subjects for 14 weeks. They observed no evidence that cortical steroids inhibit the growth of skin structure in humans. The suppressive action of cortisone on connective tissue was borne out by Plotz²⁰ and his associates in experimental studies of wound healing. Baker and Whitaker¹ also demonstrated a striking interference in the formation of granulation tissue by direct application of hog adrenal extract dissolved in 25 per cent alcohol solution to cutaneous wounds in rats. However, they observed that adrenal extract prevented the proliferation of fibroblasts and the endothelium of capillaries, for a limited period. Opsahl's¹⁸ work suggested another mechanism of action of adrenal steroids. She noted that adrenal cortical extracts¹⁷ and Compound E¹⁸ inhibited the spreading of intradermally injected India ink with hyaluronidase.

CORTISONE ADMINISTERED SYSTEMICALLY

The widespread use of cortisone in the so-called "collagenous or mesenchymal diseases" led the authors to direct investigation to some of the less frequently reported but appropriate dermatoses in which cortisone might be expected to have an effect. Studies of parenteral use of cortisone were primarily directed toward hypersensitivity states.

Penicillin Reactions

Eight patients with severe reactions to penicillin were treated with cortisone. The patients all had serum sickness-like reactions with fever, arthralgia, angioneurotic edema and extensive migratory urticaria. Patients with lesser degrees of reaction were not included because it was felt that, if they were,

a fair evaluation of the effect of cortisone might not be achieved. All but two of the patients were so severely affected that hospitalization was required. Cortisone was administered intramuscularly in the following manner: 100 mg. each 12 hours for the first 24 hours and then 100 mg. daily until subsidence of the reaction. All subjective and objective symptoms disappeared in two to five days, the average being three days. The response was much more dramatic and rapid than that obtained in similar patients treated with antihistaminics and intravenously administered procaine.

REPORT OF A CASE

A 37-year-old male received penicillin injections Dec. 22, 23 and 24, 1950, because of injuries received in an automobile accident. On Jan. 2, 1951, the patient noted severe itching of the scrotum and inguinal regions, and the following day there was pronounced edema and erythema of the scrotum as well as erythema, scaling and eczematization of the inguinal and perianal areas. There was generalized urticaria with angioneurotic edema of the face and hands, and pronounced swelling and tenderness of the wrists and elbows. The patient complained of pain in the joints and the temperature rose from 100° F. to 103° F. He was hospitalized and received 100 mg. of cortisone twice daily for the first 48 hours and a total of 100 mg. during the succeeding 24 hours. Within 24 hours after therapy was started the temperature was normal and the arthralgia had abated. Most of the urticarial lesions had disappeared by the end of 48 hours but angioneurotic edema to a lesser degree was still evident. At the end of 72 hours the patient was completely free of all previous subjective and objective symptoms.

Pemphigus Vulgaris

Two patients with pemphigus vulgaris were treated. One, a 70-year-old man with severe bullous pemphigus of nine months' duration, received 100 mg. of cortisone intramuscularly daily for ten days. Rapid involution of all lesions occurred. Cortisone to be taken orally was then prescribed, in doses of 75 mg. daily, decreasing to 50 mg. per day. When cortisone dosage was further reduced, a few scattered blebs and bullae appeared; when it was increased to 50 mg. daily again the patient became and remained symptom-free.

The other patient (who was presented at a meeting of the Los Angeles Dermatological Society after the first remission) had been under observation for 12 months at the time of this report. Because of unusual features, the case of this patient is presented in detail.

REPORT OF A CASE

A 50-year-old white male had pemphigus of two years' duration. There were profuse erosions and clear blebs of the mucous membranes of the tongue, cheeks, pharynx, and of the vermillion borders of the lips, as well as vegetative lesions of the perianal and inguinal regions. Pemphigus vegetans was confirmed by biopsy, and by several dermatologists throughout the country. Past treatment had included aureomycin, bacitracin, acetarsone, sodium naphtholate, x-ray therapy, transfusions and sulfonamides. There had been a single partial remission for two weeks following acetarsone therapy but relapse occurred despite an

increase in dosage. Therapy with cortisone acetate was started April 12, 1950. At that time there were thick vegetative lesions in the anogenital region, profuse erosions of the oral cavity and crusted lesions of the lips. Because of pain in the mouth, eating was difficult and the patient had lost 30 pounds in weight in six months. On the basis of reports that cortisone inhibits granulation tissue, it was thought that the administration of this steroid might have some effect upon the vegetating lesions of pemphigus. The dosage schedule was as follows: 100 mg. daily intramuscularly for four days; 75 mg. daily for four days; 50 mg. for four days; and 25 mg. every second day for three doses. From April 12 to May 7 the patient received a total of 975 mg. of cortisone acetate. The soreness of the mouth disappeared in four days, the vegetative lesions healed in eight days and the mouth was free of lesions in 14 days. On May 18, two weeks after discontinuance of treatment, a new crust appeared on the left side of the lower lip. By June 5 the entire lower lip was crusted and a few erosions began appearing in the mouth. On June 22, granulations of the inguinal region began to recur, and there were additional oral lesions. Cortisone therapy was reconstituted and from July 8 to August 1 the patient received 1,125 mg. Again the eruptions subsided rapidly. From Aug. 1 to the time of discontinuance of therapy on Jan. 8, 1951, the patient was given maintenance doses which were gradually reduced to only 50 mg. weekly. For nine months up to the time of this report (four months after discontinuance of therapy) the patient had had only occasional evanescent erosions in the mouth. There was no recurrence of vegetative lesions in the groin, and when last observed the patient was in excellent health and doing a full day's work.

Chronic Exudative Discoid and Lichenoid Dermatoses (Sulzberger-Garbe)

The case of one patient with this syndrome, who was treated with cortisone and observed over a period of eight months, is presented in detail:

REPORT OF A CASE

A 66-year-old white male, first observed Aug. 14, 1950, had intensely pruritic and excoriated, generalized, maculopapular and patchy, erythematous, scaly, exudative dermatosis. For two years he had been unable to work and had been under dermatological therapy constantly, including hospitalization at the Los Angeles County General Hospital on two occasions in 1949 (Sept. 28 to Nov. 21, and Nov. 30 to Dec. 15). During each hospital stay the symptoms cleared with bland therapy, but recurred immediately after discharge. Sodium arsenite, penicillin, x-ray therapy, Benadryl®, starch baths, permanganate baths, lotions and ointments, phenobarbital, Vioform® and Fowler's solution had been ineffective in the past. Result of a biopsy at the Los Angeles County General Hospital on Sept. 30, 1949, was reported consistent with the diagnosis of Sulzberger-Garbe disease.

From Aug. 24, 1950, to Dec. 20, 1950, cortisone was given intramuscularly: 100 mg. daily for four days, then 75 mg. daily for six days, and 50 mg. every second day for three doses. By Sept. 8, there was about 50 per cent improvement subjectively and objectively. Between Sept. 9 and Nov. 1, 50 mg. of cortisone was given intramuscularly every other day. From Nov. 1 to Dec. 20, 50 mg. was administered once weekly. Steady progressive improvement continued until Dec. 1. Itching during the day was completely eliminated and the patient was able to resume gainful employment for the first time in two years. On Dec. 20 there was partial relapse, subjectively and objectively. The dosage of corti-

sone was then increased as follows: 75 mg. intramuscularly on Dec. 20, 22 and 27; 75 mg. orally per day, from Dec. 27, 1950, to Jan. 31, 1951. From Feb. 1 to March 6 the dose was 50 mg. daily, and from March 7 to April 18 it was 50 mg. every other day. Since then the patient has taken 50 mg. orally once weekly, without relapse.

The second course of cortisone therapy resulted in even more striking improvement than was observed initially. At the time of report, the skin was practically free of all lesions, with only occasional itching during the night, and the patient was able to continue working. At no time was there any untoward effect clinically, and there were no changes in results of laboratory tests except for a reduction in the proportion of eosinophils from 22 per cent to 1 per cent.

Localized Myxedema Associated with Malignant Exophthalmus

The authors observed a 56-year-old man with malignant exophthalmus and extensive pretibial myxedema that appeared after radioactive iodine therapy for hyperthyroidism. The exophthalmus had progressed to such a degree that orbital decompression had been recommended. Cortisone was given and within two weeks—a total of 600 mg. of the hormone was given during the period—there was considerable regression of both the exophthalmus and the pretibial myxedema. Several weeks later another 900 mg. of cortisone in divided doses was administered, and there was 75 per cent regression of the exophthalmus and almost complete involution of the localized myxedema. Nine months later, mild relapse was noted but it was insufficient for the patient to desire additional therapy.

Exfoliative Dermatitis

Two patients with generalized erythroderma following gold therapy for arthritis were treated with cortisone. The first patient, a male 40 years of age, had seborrheic-like dermatitis of the scalp and all the intertriginous areas which rapidly spread over the entire body. There was edema and weeping of all the flexural surfaces. A course of British anti-lewisite was administered with no effect upon the dermatitis. Two weeks later cortisone was given, 100 mg. intramuscularly daily for six days, with dramatic involution; then 50 mg. intramuscularly daily for five days. One week later there was mild recurrence of the seborrheic-like dermatitis, but it was controlled with oral administration of 50 mg. of cortisone daily for three weeks. In the other patient, a 52-year-old woman, similar extensive seborrheic-like dermatitis developed soon after gold therapy and it gradually extended to involve the entire body with erythroderma. There were exudative lesions of the flexural surfaces. A course of British anti-lewisite (BAL) initially induced considerable improvement, but relapse soon followed. Another course of BAL was ineffective. Several weeks later cortisone was administered intramuscularly, 100 mg. daily for four days, 75 mg. for four days, and 50 mg. for six days, for a total of 1,000 mg. Involution of the dermatitis was prompt and complete.

However, two weeks later there was partial relapse. The patient was then given cortisone 50 mg. intramuscularly daily for two weeks; then 50 mg. every other day for two weeks. She remained well thereafter.

Atopic Dermatitis

Three male patients with long-standing atopic dermatitis so severe as to make hospitalization necessary, did not have satisfactory response to cortisone given in the dosage schedule advocated for rheumatoid arthritis. In one patient who had early favorable response to the hormone, increased dosage was required to maintain the initial improvement. When cortisone was discontinued there was prompt relapse and the disease then was more severe than it had been before the hormone was given.

Negative Results

Three patients with chronic urticaria of long duration and of unknown cause had no response to cortisone acetate administered intramuscularly.

ADRENOCORTICOTROPIC HORMONE (ACTH)

The authors' experience with ACTH has been too recent and too limited to warrant a detailed report of observations. The hormone was used in treating postpartum toxic dermatitis, autoreactivity dermatitis, generalized subacute exudative neurodermatitis and severe bullous erythema multiforme-like penicillin reaction. In the patients treated for these conditions, the lesions cleared following use of ACTH in doses comparable to those advocated for rheumatoid arthritis. The results were similar to those obtained with cortisone. It was the authors' impression that the response to ACTH was perhaps even more rapid than that which occurred when cortisone was given. However, that opinion is based on observation of only a very small number of patients treated with ACTH.

The authors believe that ACTH may be more rationally employed to obtain an initial rapid response as reported by Irons¹⁸ and co-workers, and that cortisone might be used subsequently in maintenance doses, with the dosage gradually reduced to complete discontinuance.

COMMENT AND SUMMARY ON USE OF CORTISONE SYSTEMICALLY

The response of eight patients with severe serum sickness-like penicillin reactions treated with cortisone was dramatic in that the reactions were terminated in two to five days. Fever and subjective complaints usually subsided within 24 hours. Dramatic improvement and healing were also observed in patients with exfoliative dermatitis.

Maintenance of remission in two patients with pemphigus vulgaris compares with the experience of others.⁵ To date this steroid offers only remission for this usually lethal disease. Whether ACTH or cortisone will prove to be curative is questionable,

and many years of observation will be required to come to any definite conclusion. Results were favorable in the treatment and observation of a patient with Sulzberger-Garbe disease over a period of eight months, but again it appears that only remission will be possible.

Hench's¹⁰ classic comment that "cortisone appears to have little or no effect on the irritant but seems to provide the susceptible tissue with a shield-like buffer against the irritant" apparently still holds true. However, cortisone is more than just a hormonal agent capable of causing remissions in some previously recalcitrant or fatal skin diseases. At present it is, in the authors' view, the definitive drug of choice in the treatment of certain hypersensitivity states: (1) Dermatitis medicamentosa, such as severe reactions to penicillin, and exfoliative dermatitis due to drugs (including heavy metals), and (2) autoreactivity dermatitis with severe generalized cutaneous involvement. In such conditions, the hormone offers clinical cure. It is true that such conditions may be self-limited, but cortisone so shortens the course that diseases which might be prolonged or even life-endangering are relatively innocuous.

In short, it appears that cortisone and ACTH are effective in two main groups of dermatoses. First, in the so-called collagenous diseases, and secondly in dermatoses characterized by a sensitivity state. In the collagenous or mesenchymal diseases, the effects of these hormonal agents are not curative, but use of them has induced remissions for varying periods. In the hypersensitivity states they are not truly curative, but they do act more definitely in that they shorten and reduce the intensity and duration of the pathologic manifestations.

Probably the greatest significance of cortisone and ACTH in dermatology, and perhaps in the whole field of medicine, lies in the stimulus to basic research and the promise for a physiopathologic explanation for some of the little understood but grave disease entities. The implication and correlation with Selye's²³ work is very interesting. ACTH and cortisone apparently influence the adaptive processes of the patient whether the original sensitizing agent be truly allergic or toxic.

Enthusiasm for these hormones should be tempered with caution. Reports of many varieties of serious reactions have already appeared. It is the authors' opinion that systemic administration over long periods or in large doses is justified only for experimental purposes by experienced groups. As regards diseases of the skin, cortisone and ACTH should be used clinically only for patients with known fatal or hopelessly incapacitating dermatoses, and for patients with extreme hypersensitivity reactions which may be protracted or life-endangering. In the latter group there is justification for the use of these steroids if the morbid process can be controlled or cured in a short period of time with a relatively small total dosage. The authors are op-

posed to the administration of cortisone or ACTH in large and prolonged dosage to patients who have chronic dermatosis of a kind known to recur when the therapy is discontinued.

TABLE 2.—*Summary of Reported Results with Cortisone and ACTH in Treatment of Skin Diseases*

UNIFORMLY BENEFICIAL EFFECTS (GENERALLY DRAMATIC)	
1. Drug eruptions	Severe penicillin reaction ^{2, 12} Exfoliative dermatitis ²
2. Severe auto-sensitization eruption	
3. Toxic dermatitis	
TRANSITORY BENEFICIAL EFFECTS	
1. Lymphosarcoma ¹⁹	
2. Hodgkin's disease ¹⁹	
3. Other lymphomas ¹⁹	
REMISSIONS INDUCED—ULTIMATE CURE QUESTIONABLE (USUALLY REQUIRE MAINTENANCE DOSE)	
1. Acute disseminated lupus erythematosus ^{4, 8, 19, 26, 27}	
2. Dermatomyositis ^{8, 27}	
3. Psoriatic erythroderma ²⁷	
4. Psoriasis with arthropathy ¹²	
5. Psoriasis vulgaris ^{12, 16, 22}	
6. Scleroderma ^{8, 11, 24}	
7. Scleroderma (ACTH only) ¹²	
8. Periarthritis nodosa ^{12, 25}	
9. Atopic dermatitis	
10. Pemphigus vulgaris ^{8, 21}	
11. Long-standing erythroderma ²⁸	
12. Pemphigoid eruptions ⁶	
NO EFFECT IN:	
1. Sarcoidosis ²⁷	
2. Mycosis fungoides ²⁸	
3. Herpes simplex ²⁷	
4. Varicella ²⁷	
5. Herpes zoster ²⁷	
6. Moniliasis ²⁷	
7. Epidermolysis bullosa ⁸	
8. Melanocarcinoma ¹⁹	
QUESTIONABLE EFFECTS IN:	
1. Chronic discoid lupus erythematosus ¹⁹	
2. Advanced scleroderma	
*3. Psoriasis vulgaris	
*4. Atopic dermatitis	
UNFAVORABLE EFFECTS MAY OCCUR IN PATIENTS WITH:	
1. Acne vulgaris	
2. Hirsutism	
3. Periarthritis nodosa ^{12, 25} (marked occlusive arterial tendency during healing reported by Shick and Irons)	
4. Scleroderma ²⁴ (thrombotic ischemic infarctions of kidney—Sharnoff)	
5. Prepsychotic states	
6. Hypertension ²⁸	
7. Bacteremia and septicemia ⁷	
8. Tuberculosis	
9. Renal insufficiency	
10. Congestive heart failure ²⁶	
11. Diabetes mellitus	

*Note: It is the authors' opinion that relapse following discontinuance of the hormone may be more severe than the original disease.

REVIEW OF LITERATURE ON SYSTEMIC USE OF ACTH AND CORTISONE IN DERMATOLOGY

It is apparent that definite conclusions cannot be drawn from reports in the literature on the use of ACTH and cortisone in dermatologic conditions because of the limited time that these agents have been used. Except for reports on the use of these steroids in the collagenous diseases the published information is meager. In some instances there is a divergence of opinion regarding the efficacy of ACTH over cortisone.¹³

In Table 2 an attempt is made to correlate data from the literature with the authors' observations and information received in personal communications from other physicians.

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Current Concepts of Primary Dysmenorrhea

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SUMMARY

Menstruation, a physiologic function, should be free of organic or psychic discomfort, but often it is not.

As to somatic causes, much has been postulated, little proved. There is evidence that somatic dysmenorrhea is caused by action of progesterone upon the uterus. And there is indication also that the cause may lie in some abnormality of the cervix or abnormal effect upon it.

Traditional association of menstruation with "illness," "curse" and the like is indicative of the psychic roots of dysmenorrhea. It has been observed that there is striking parallel between dysmenorrhea in adulthood and psychological maladjustment in childhood. Cure of psychogenic dysmenorrhea may be difficult. Proper anticipation—emotional preparation of the girl from infancy on, then sound instruction in biologic fact—would seem to be a major means of prevention.

AS a physiologic phenomenon, menstruation should be free of organic or psychic discomfort. That this is not the case is common knowledge. It has been estimated that approximately 35 per cent of menstruating women have dysmenorrhea, beginning at menarche in 65 per cent and a few years later in the remaining 35 per cent. Clinical observation supports the view¹⁸ that in nulliparous women over 30 years of age, dysmenorrhea becomes irregular and less intense and disappears at the climacteric.

Two broad categories of dysmenorrhea are recognized: Primary or essential, and secondary. The latter is secondary to pelvic disease. It is not dealt with in this presentation. The former occurs in the absence of significant, demonstrable, organic pelvic disease.

Primary dysmenorrhea may be manifest only as cramps in the lower abdomen, but frequently it is accompanied by headache, backache, lassitude, nausea and vomiting, emotional lability and depression. Dysmenorrheic pain varies in character from severe and aching to colicky and labor-like. It may be so severe as to force the patient to bed for one to several days each month.

Even if a pelvic lesion is present, the possibility that all the dysmenorrheic symptoms are not attributable to it should be borne in mind.

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SOMATIC CONCEPTS

Much has been incriminated but little proved in the etiology of dysmenorrhea. A few facts are established:

1. Only in ovulatory cycles where a progesterone effect is demonstrable in the endometrium does dysmenorrhea of the uterine-cramp type occur.^{2, 14, 15, 20, 21, 23, 24}
2. Dysmenorrhea can be prevented by preventing ovulation.^{20, 21}
3. Uterine cramps can be induced by the administration of progesterone^{20, 23} during anovulatory cycles when the ovary produces no progesterone.

It would thus seem that dysmenorrhea occurs only when the uterus has been acted upon by progesterone.

Suspicion has been directed to the cervix by the following observations:

1. Cramps occur in the latter half of the contraction cycle¹⁵ when the cervix rather than the cornua or the fundus is presumably fundamentally involved.
2. Parturition has repeatedly been clinically observed to alleviate dysmenorrhea.
3. Operative dilatation of the cervix will sometimes eliminate dysmenorrhea.¹⁷

Less conclusive has been the evidence of different pain thresholds in dysmenorrheic and non-dysmenorrheic women, where some overlapping in reaction to controlled painful skin stimuli was noted, and where relief with progesterone, a medication not known to be analgesic, was obtained.⁹

PSYCHIC CONCEPTS

Early in the recorded history of mankind one finds the roots of superstition, misconception, and taboos surrounding the menstrual function of women. These attitudes are epitomized in the *Natural History of Pliny*: "The touch of a menstrual woman turned wine to vinegar, blighted crops, killed seedlings, blasted gardens, brought down the fruit from trees, dimmed mirrors, blunted razors, rusted iron and brass (especially at the waning of the moon), killed bees or at least drove them from their hives, caused mares to miscarry, and so forth." Anthropologists have collected similar data from all parts of the world. That these beliefs and emotional attitudes still persist can be attested by those who study the dreams and fantasies of contemporary mankind. Mary Chadwick has written "The Psychological Effects of Menstruation,"³ a most informative monograph, which comprehensively deals with this material from ancient to modern times.

On every hand menstruation is referred to by modern women as "the curse," "being ill," "falling off the roof," "being sick," being "unwell," and the like, indicating the underlying attitude toward the

function. The infrequency with which physicians hear the process called "menstruation" reveals a significant emotional expression of today's woman. The unscientific, illogical restrictions placed upon the activities of menstruating women are still numerous in our "enlightened" civilization.

Here, then, is a significant psychic root in the pathogenesis of dysmenorrhea—a deep, widespread, historical, cultural fostering of an attitude toward a physiological process which scientific facts have not yet been able to remove from the vast repository of magical, superstitious thinking and feeling in the mind of man.

Granted that each woman should have the opportunity to acquire biologic facts, it must be emphasized that the adequate utilization of these data is impossible unless she has been emotionally prepared to use them by someone with whom as a child she has a healthy emotional relationship, preferably the mother.

This leads to consideration of the preparation of the child for her first menstruation, which has been described as "the badge of femininity." How this badge is worn—whether in shame, guilt, remorse, sorrow, fear, pride, joy, or whatever—sets the stage for the reaction to a constantly recurring event extending over many years in the woman's life. The preparation properly begins in infancy when emotional patterns are developing; when they have little obvious connection with what is popularly, narrowly, and incorrectly not considered sexual. No longer does the scientist tolerate the view that sex initially enters human life at puberty; he recognizes its presence in the infant, baby, and child. It is in this period that the family, especially the mother, has the opportunity of preparing a daughter by cultivating healthy emotional attitudes about human anatomy and physiology, masturbation, sexual intercourse, pregnancy, and the like, as well as femininity, to wear her "badge" proudly and joyfully until such time as desire for motherhood makes menstruation what Gill⁸ called "the weeping of the disappointed uterus." Unless the little girl can conceive of womanhood as quite as desirable as manhood, menstruation can serve as a constant reinforcement of gender inferiority, already sufficiently emphasized in the feminine mind by anatomical differences. Validation of this concept is at hand in every family where one merely listens to the growing child after her first awareness of genital anatomic differences. On an adult level, there are everywhere evidences^{4, 6, 12, 13} of the "inferior" or "weaker" sex concept and woman's "struggle for emancipation."

The importance of the prepubertal emotional development of the girl is strikingly borne out by a study²⁵ of dysmenorrheic women and control groups. The incidence of psychological maladjustment in childhood was four times as great in the dysmenorrheic group as it was in the control group. Also more often noted in the dysmenorrheic women, as adults, than in the controls were two main personality constellations. One was characterized by a deep resentment of the feminine role; the other by a shy, with-

drawn, anxious, and complaining personality in an obviously immature body.

Giffin⁷ delineates three personality types in dysmenorrheic women:

1. The aggressive group—the so-called tomboys—"frequently premature in menstrual onset, resentful of their role early in life, and increasingly so as puberty appears."

2. The extremely dependent and shy group—"girls frightened of responsibility, phobic and insecure in most of life's situations, aware of their lagging behind classmates and friends, anxious to participate, yet unnerved in any new situation. As such individuals shy away from all responsibility, they cringe from the assumption of additional physiologic processes."

3. "The severely anxious or guilty women whose reaction to the menstrual period is as that to an impending punishment, a punishment deserved yet interminable by virtue of its repetition. These are the girls in whom the onset of the first menses is frequently related in time to some quasi-sexual relationship with a boy friend, to a bout of excessive masturbation, or to an extremely vivid fantasy, often including rape. The position of such girls is often made more difficult by the parental attitude that one just never mentions physiologic changes—whereupon the child reasons 'it must be bad since mother never mentioned it.'"

Other observers^{3, 5, 8, 11, 16, 19, 22} have emphasized the importance of taboos, superstitions, misconceptions, fantasies, and the emotional personality constellations in playing determining roles in patients with dysmenorrhea.

It must be remembered that "dysmenorrhea is never the result of just one emotional conflict situation but always presupposes a series of emotional preconditions the foundation of which has been laid at different times."¹¹ In 1884 Clifford Allbott wrote: "A neuralgic woman seems thus to be particularly unfortunate. However bitter and repeated may be her visceral neuralgias, she is told either that she is hysterical or that it is all uterus. In the first place she is comparatively fortunate, for she is only slighted; in the second case she is entangled in the net of the gynecologist, who observes that her uterus, like her nose, is a little on one side, or, again like that organ, is running a little, or that it is as flabby as her biceps, so that the unhappy viscous is impaled upon a stem, or perched upon a prop, or is painted with carbolic acid every week—arraign the uterus and you fix in the woman the arrow of hypochondria, it may be for life."¹

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The Role of the Connective Tissue Ground Substances (Mucopolysaccharides) in Allergic Injury

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SUMMARY

The basic histologic reactions of the classic allergic diseases and of several systemic diseases in which allergic mechanisms appear to operate are described and illustrated. Particular attention is drawn to the ground substances—mucopolysaccharides—which constitute important elements of connective tissue and vascular structure. The intimate locus of the allergic reaction appears to be in and to involve a swelling of such substances. It is suggested that antibodies (and possibly antigens) may be attached to these mucinous ground substances of the connective tissues.

IT is the purpose of this report to describe and illustrate the character and distribution of lesions in diseases known to be caused by allergic reaction and also in a group of diseases in which allergic mechanisms appear to operate. The discussion will be primarily concerned with the so-called anaphylactic type of hypersensitivity reaction as distinguished from the bacterial or tuberculin type.¹⁹ In an effort to identify a unifying factor in what appear to be dissimilar lesions, particular attention will be directed to the intimate structure of the tissues involved.

THE GROUND SUBSTANCE OF CONNECTIVE TISSUES AND BLOOD VESSELS

In studies of arteriosclerosis²⁴ and rheumatic diseases, the author's attention was drawn to the substances known as mucopolysaccharides which constitute the ground substance or interfibrillar matrix of connective tissue structures. It is pertinent as a preface to this discussion to describe briefly the character and distribution of the mucopolysaccharides. Such materials are vital structural components of various connective tissues, including blood vessels. They are mucinous in character and serve importantly as mobile cement substances. Only recently have these substances been receiving deserved study.^{5, 15} In usual histologic techniques these materials escape attention. In situations where the mucopolysaccharides are concentrated they may be demonstrated by the property of metachromatic

staining with toluidine blue. However, the finely distributed mucopolysaccharides are not well shown by this method. Recently a useful and precise histochemical technique for demonstration of the mucopolysaccharides²³ was developed. It is based upon the method proposed by Hale.⁷ In this technique the mucopolysaccharides are stained blue and well differentiated from reticulum and collagen fibers, which stain red, and from basement membranes, which stain an orange yellow. Sites where the connective tissue mucopolysaccharides are found to be present in considerable amounts include the reticular tissue of the skin just beneath the epidermis and surrounding skin appendages, the synovial tissues, tendon sheaths and heart valves. In blood vessels a mucopolysaccharide ensheathes the elastic tissue fibers and lies between the smooth muscle cells of the muscular arteries (Figure 1-A). A similar relationship between mucopolysaccharides and the smooth muscle cells exists in the bronchial wall. Delicate membranes of a mucopolysaccharide surround reticulum fibers and finely dispersed collagen and are in intimate relationship with the walls of capillaries and venules.

The mucins secreted by various epithelial cells are not germane to this discussion, but it should be noted that they are chemically related and assume a similar coloration in the histochemical method employed.

Mechanisms of antibody formation, the sites of antibody and antigen fixation and the precise nature of the injury resulting from their union are still obscure. It is well established that minute amounts of antigenic substance which gain access to the tissue fluids may generate large amounts of antibody which may be found in the blood and, more importantly, become fixed in tissue. Experimental as well as clinical investigations indicate that both sensitization and shock can be elicited by ingestion and inhalation as well as by parenteral administration of antigenic substances.²⁶

HISTOPATHOLOGIC CHANGES IN ALLERGIC INJURIES

Urticaria

Evanescence urticarial lesions are characterized primarily by congestion and edema in the delicate reticular tissue beneath the epidermis. This is similar to the early reaction following intracutaneous injection of antigen in a sensitized organism. If the injury due to the antigen-antibody union is more intense and the reaction persists for 24 to 48 hours a cellular response occurs in which the eosinophil is commonly prominent (Figure 1-B). A swelling of the mucopolysaccharide at this site is demonstrable in appropriately stained sections.

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Allergic rhinitis

This reaction is characterized by excessive serous and mucous secretion of the nasal mucosa with edema of the submucosal tissue. It is well known that smears of such nasal secretions are particularly rich in eosinophils. Pathologists rarely observe specimens from the early phases of simple allergic rhinitis or hay fever but commonly see the edematous polyps that have resulted from repeated allergic insults. Such a lesion is shown in Figure 1-C. The submucosal edema is striking, and the tissue is infiltrated with eosinophils. The epithelial mucopolysaccharide stains intensely blue and a more delicately stained mucopolysaccharide is present in the edematous submucosa.

Eczema

In eczema the pathologic changes, as observed both grossly and microscopically, are, of course, extremely varied depending upon the intensity of the insult, duration, external irritative factors and infection. Initially the process is one of capillary hyperemia with edema beneath the epithelium and at times vesiculation due to accumulation of fluid between epithelial cells. The mucoid ground substance beneath the epidermis is swollen.

Asthma

The pathologic changes in classical asthma are quite distinctive. In the relatively infrequent case that causes death the lungs are emphysematous, and the mucus which fills the small bronchi is extremely tenacious. The microscopic changes are varied in intensity, but the basic changes commonly observed are mucous plugs in bronchi, overactive mucous secretion of the epithelium, some hypertrophy of the bronchial musculature, and hyaline thickening of the basement membranes. There is a variable mucinous edema and inflammatory cell infiltration of the

bronchial wall in which eosinophils are frequently prominent (Figure 1-D).

In consideration of allergic rhinitis, eczema and asthma it is of interest to recall that sensitization of local areas can be established if antigen is concentrated in those areas. One condition favoring such concentration is the circulation of antigen at a time when a local focus of inflammation is present.

Serum Sickness—Sulfonamide and Periarteritis

The syndrome of serum sickness affords a good example of a more generalized hypersensitivity reaction. The major clinical manifestations are well illustrated by the following case record:

A white male 28 years of age had received tetanus antitoxin for a laceration of the hand. In a few hours urticaria developed, then subsided. Two weeks later the patient became acutely ill, with fever, urticaria, painful swollen joints and edema about the eyes. During the ensuing week the clinical manifestations noted continued, and he was admitted to the hospital one week after the onset of symptoms. Upon physical examination, an injected pharynx and diffuse soft swelling of the neck were noted. Several joints were painful on movement and were swollen and reddened. The skin was hot and dry, and on it were urticarial lesions quite like the erythema marginatum of rheumatic fever except that they were more prominent. (It is of interest that Holt and McIntosh,⁹ commenting on the occurrence of erythema marginatum, stated that "unless this occurs as a manifestation of serum disease it is nearly always rheumatic in origin.")

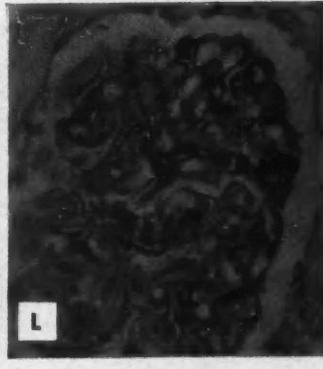
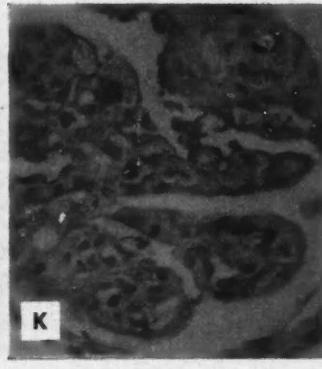
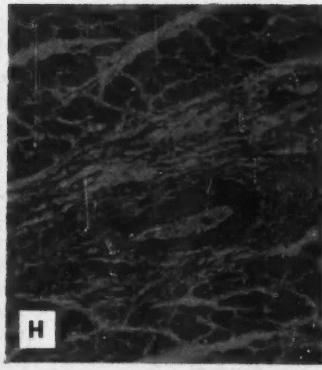
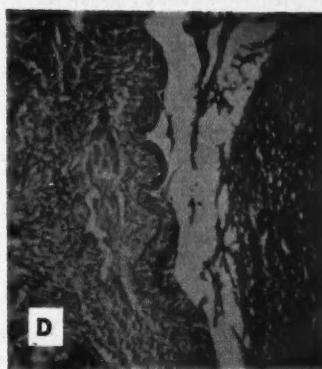
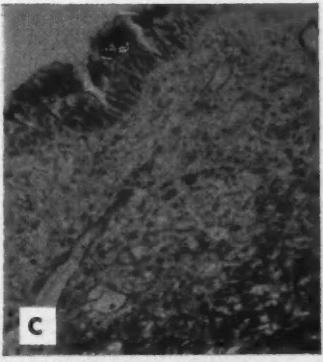
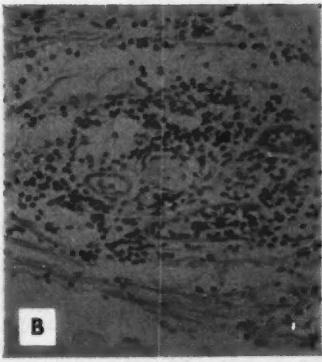
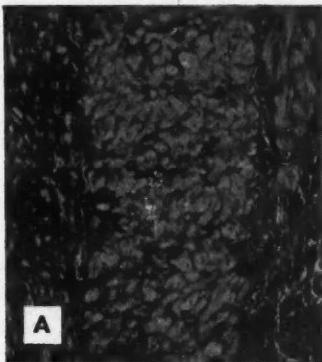
The pulse rate was 110; the blood pressure 120 mm. of mercury systolic and 72 mm. diastolic. Heart sounds were normal. The hemoglobin content and the number of erythrocytes in the blood were within normal limits. Leukocytes numbered 15,900 with 90 per cent polymorphonuclear neutrophils. Eosinophils were not present. The ascorbic acid content of the plasma was 0.32 mg. per 100 cc. No abnormality was noted in an x-ray examination of the chest. Large doses of ascorbic acid (1 gm. four times daily) were administered, beginning on the third day of hospitalization. The tempera-

Legends for Color Plate

A—An artery with changes of mild arteriosclerosis. The slightly thickened intima with excess mucopolysaccharide staining blue is at the left. The media occupies the central segment. Note the finely distributed mucopolysaccharide between muscle cells. The adventitia is composed of collagen (red) and mucopolysaccharide. Stain C.I. $\times 116$. **B**—Twenty-four hour allergic reaction in skin of guinea pig sensitized to horse serum. Note congestion, edema and infiltration with eosinophils. In appropriately stained sections, much mucopolysaccharide may be observed in this tissue. Stain H. and E. $\times 116$. **C**—Segment of nasal polyp in allergic rhinitis. Note blue mucin in epithelial cells and swelling of the ground substance in the underlying connective tissue. This tissue is infiltrated with eosinophils not well shown in this preparation. Stain C.I. $\times 116$. **D**—Bronchus in asthma. Note excess of epithelial mucin in the lumen, thickening of the basement membrane and mucinous edema of the bronchial wall. Stain C.I. $\times 58$. **E**—Acute arteritis in a case of sulfonamide hypersensitivity. Stain H. and E. $\times 116$. **F**—Acute arteritis. Note excess accumulation of mucopolysaccharide in the vessel wall (blue) and so-called fibrinoid degeneration (yellow). The latter is probably fibrin. Stain C.I. $\times 58$.

*Stains: C.I.—Colloidal iron for demonstrating mucopolysaccharides; H. and E.—Hematoxylin and eosin.

G—Arthus reaction in larynx with extreme congestion and necrosis of walls of capillaries and venules. Stain H. and E. $\times 116$. **H**—Early Aschoff reaction in acute rheumatic fever. This is characterized by swelling of the ground substance and beginning cellular proliferation. Stain C.I. $\times 116$. **I**—Verrucous nodule on heart valve in rheumatic fever. The heart valves normally have a high mucopolysaccharide content. In rheumatic endocarditis this substance swells; the intimal surface is interrupted and fibrin is deposited on the surface. The cells proliferate and hypertrophy, assuming the characteristic features of the rheumatic reaction. Stain C.I. $\times 116$. **J**—Characteristic lesion of acute disseminated lupus erythematosus in the heart with prominent swelling of the ground substance (blue). A focus of so-called fibrinoid degeneration may be seen (orange-colored) just beneath the collagen (red). Stain C.I. $\times 116$. **K**—Glomerulus in acute disseminated lupus erythematosus. The "wire loop" lesion is characterized by pronounced thickening of the basement membrane. There is also some glomerulonephritis evidenced by endothelial proliferation and duplication of the basement membrane. The surface epithelium has been largely destroyed at this stage. Stain C.I. $\times 350$. **L**—Glomerulus in early proliferative glomerulonephritis. The surface epithelium with its mucoid cytoplasm stains blue; the basement membrane is stained orange. At the lower left, endothelial proliferation has occluded the capillary loops. Stain C.I. $\times 230$.



ture dropped, and all manifestation of illness subsided in the next four days. (It is not known just what influence ascorbic acid had on the illness. Favorable influences of large doses of ascorbic in rheumatic fever have been reported.¹⁹)

While skin and articular lesions dominate the clinical picture in serum sickness it is well known that significant visceral lesions may result from vascular injury. Since the early investigations by Vaubel²⁹ and Klinge¹² there have been numerous studies of the pathologic changes occurring in animals subjected to hypersensitivity injury by injection of foreign sera. Rich and Gregory revived interest in this field of study and reported the occurrence of periarteritis²⁰ and lesions bearing some resemblance to those of rheumatic fever²¹ in rabbits subjected to hypersensitivity injury with horse serum. More and McLean¹⁷ recently reported a rather extensive experimental study of horse serum injury in rabbits and cited most of the pertinent literature. In 1937 Clark and Kaplan³ described essentially analogous lesions in two men who had received large doses of antipneumococcic (horse) serum. The most common form of vascular hypersensitivity injury observed in man is that which has been encountered since the widespread use of sulfonamides in which the antigen is probably a conjugate of blood protein and the drug. Most pathologists have observed numerous cases of this type.

In serum and sulfonamide hypersensitivity the brunt of the injury is borne by blood vessels, particularly small arteries. Lesser lesions may appear as edema of the media spreading the muscle cells apart. More severe lesions are characterized by necrosis of segments of the muscular wall with a perivascular inflammatory reaction. The injuries are varied in extent and intensity. Characteristic lesions may be seen in Figures 1-E and 1-F. A striking swelling of the mucoid ground substance will be noted in Figure 1-F. Aneurysmal dilatations with hemorrhage may or may not occur. Vascular lesions may be rather widely disseminated and consequently the clinical manifestations may point to involvement of several organs or organ systems. Spastic contraction of arteries may contribute to development of vascular lesions. Smooth muscle contraction is characteristic of certain allergic reactions. Reactions to sulfonamide are not exclusively vascular. Allen¹ drew attention to the various serious injuries that may occur in the kidney.

Arthus Reaction

At times an unusually high degree of hypersensitivity may exist in which the hemorrhagic element is prominent as is seen in the Arthus reaction. Here the injury centers in and around about small arterioles and capillaries and is associated with thromboses and hemorrhages (Figure 1-G).

Recently a case of this type, in which the sensitizing agent appeared to be penicillin, was observed:

A middle-aged white adult gave a history of rheumatic fever in childhood. During the ten years preceding the present illness he had had hay fever and for five or six years had had recurrent episodes of polyarthritis. Five months prior to hospitalization he had nephritis with albuminuria and hyper-

tension. He had taken sulfanilamide some time prior to this. Three months after he had nephritis, a febrile illness with polyarthritis, pleuritis and pericarditis developed. The acute manifestations of this illness subsided in three days on administration of penicillin and salicylates. At that time the urine contained albumin, erythrocytes, leukocytes, and casts. In a phenolsulfonphthalein test, there was 38 per cent excretion in one hour. Administration of salicylates was continued and the patient remained in bed for about ten weeks. Three days before the patient entered the hospital, chilliness, sore throat and fever developed. Coincident with this, erythematous and bullous lesions appeared at the site of previous penicillin injections. Penicillin was again administered. Pain and fullness in the right shoulder developed rapidly, the patient had difficulty in speaking, and there was edema of the eyelids with small hemorrhagic ulcers. A few similar lesions appeared on other parts of the body. Death resulted from what appeared to be cardiac failure three days after the onset of the terminal illness.

In a postmortem examination, edema of the epiglottis and hemorrhagic edema of the false cords of the larynx were noted. The periarticular tissue and synovia of the right shoulder were edematous and hemorrhagic. Residues of the previous illnesses included pleural and pericardial adhesions and relatively small somewhat scarred kidneys. In the lesions of the skin, vocal cords and joint there was extreme vascular engorgement and hemorrhage with necrosis and thrombosis of some of the small blood vessels. A characteristic lesion from the larynx is shown in Figure 1G. Accumulation of mononuclear and polynuclear leukocytes around some of the engorged vessels indicated that there was injury and reaction in the reticular tissue around the vessels as well as of the vessels themselves. In fact, the vascular injury may have been secondary to that in the surrounding reticular tissue. The process appeared to be quite like the explosive hypersensitivity lesion known as the Arthus reaction. In the kidneys, healing lesions which were in keeping with an antecedent sulfonamide hypersensitivity injury, were observed.

This case presents several interesting aspects. The patient had a history of illnesses that either were allergic or had allergic implications. The renal disease which had caused significant impairment of function was of a type that probably had resulted from sulfonamide injury five months before. In the author's experience, severe allergic injuries of the vascular type most frequently occur in patients with an "allergic" background, and often with antecedent renal impairment. Thus the hazard of serious allergic injury with foreign sera, sulfonamides, antibiotics and other allergens would appear to be especially great in the person with history of allergic sensitivity, particularly in the presence of renal impairment.

Rheumatic fever

Since the early studies of Swift²⁷ a considerable body of evidence has accumulated implicating the operation of an element of hypersensitivity in rheumatic fever. Klinge¹² and his associates, and Vaubel²⁹ and Junghans¹⁰ reported that in rabbits subjected to repeated doses of horse serum, lesions resembling those of rheumatic carditis developed. This work was extended and reviewed by Rich and Gregory.²¹ It is likely that an allergic element contributed to the carditis which Rinehart and Mettier produced in guinea pigs by subjecting them to the combined influence of scurvy and infection with beta hemolytic

streptococci.²⁵ While it is believed that the scurvy conditioned the connective tissues and altered their reactivity, the deficiency also impaired the localization of the infection and probably permitted greater and more prolonged absorption of antigenic substance. Immunological studies^{4, 18} indicated heightened antibody responses in the rheumatic subject. It is well recognized that lesions of periarteritis may occur in rheumatic fever.^{6, 21} This is one of the evidences implicating an allergic influence in the disease. The rheumatic inflammatory reaction is characterized by a particular type of proliferative reaction in the heart valves and in the reticular connective tissue surrounding small twigs of the coronary arteries. The size and cytologic features of the reactive cells make the Aschoff body quite a distinctive lesion. In its early and fully developed phase there is an excessive accumulation of a mucopolysaccharide. Talalajew²⁸ first drew attention to mucinous edema at the site of the developing Aschoff body. Such a lesion is shown in Figure 1-H. The verrucal lesions of the heart valves develop at the lines of closure. The heart valves normally contain a high component of mucopolysaccharide. The verrucal lesions appear to involve a swelling of this material accompanied by loss of surface endothelium and the deposition of fibrin (Figure 1-I).

Acute disseminated lupus erythematosus

Another "rheumatic" disease that warrants consideration in this connection is acute disseminated lupus. Characterization of this disease has largely developed from a series of studies by Baehr and Klemperer¹¹ and their associates at the Mt. Sinai Hospital. The basic nature of this disease is not clear although there is sufficient evidence for strong suspicion that elements of hypersensitivity operate in its pathogenesis. It is a widespread, commonly fatal disease with a predilection for women in the child-bearing period. Lowering of the plasma albumin and elevation of globulin reflect a profound metabolic disturbance. Anemia, leukopenia and thrombopenia are frequently present. Erythematous and hemorrhagic skin lesions are commonly present. Particularly characteristic is the "butterfly" erythema across the bridge of the nose. Arthritis and serositis are frequent manifestations. Renal injury is manifest by proteinuria and by the presence of mixed cellular elements and casts in the urine. Recently an element has been found in the blood which causes clumping of leukocytes and degenerative changes in nuclear structure.⁸ The pathologic changes are widespread, involving particularly the skin, heart, kidneys, joints, pleural and pericardial surfaces. Degenerative and proliferative lesions often associated with thromboses are observed in many small blood vessels. In the kidneys the characteristic hyaline thickening of the basement membrane which has been aptly designated as the wire loop lesion (Figure 1-K) may develop. In some cases there may also be endothelial cell proliferation in the glomeruli¹¹ quite like that which occurs in glomerular nephritis. In about 20 per cent of cases the distinctive lesion known as non-

bacterial thrombotic endocarditis is present. Small sterile thrombotic masses occur along the line of closure of the mitral valve and are commonly found attached to the mural endocardium. While endothelial and vascular lesions are widespread there appears to be a degenerative change in some connective tissue sites which cannot be readily explained on the basis of vascular or endothelial injury. Klemperer expressed the belief that there is a physicochemical alteration in collagenous tissue, probably primarily in the ground substance which constitutes the basic lesion. This he called fibrinoid degeneration. Altschuler and Angevine² drew attention to the finding of metachromasia (the staining property of ground substance) at sites of so-called fibrinoid degeneration. Studies by the author bear this out. While agreeing that there is probably a basic defect in the interfibrillar element of collagenous structures, the author is of the opinion that the brilliant eosinophilic staining property which characterizes the so-called fibrinoid degeneration is the result of seepage of plasma protein into the tissue and the consequent deposition of fibrin. A characteristic lesion is shown in Figure 1-J. There is a prominent increase in mucopolysaccharide (blue) with an associated focus of so-called fibrinoid degeneration (orange).

Other diseases with allergic implications

There is substantial evidence that glomerulonephritis may be produced by allergic injury.¹⁴ It would appear significant that the cytoplasm of the glomerular epithelium contains a substance which reacts as a mucopolysaccharide by the histochemical technique employed in this study. The basic reaction in glomerulonephritis involves proliferation of the glomerular endothelium (Figure 1-L), and at times proliferation of the glomerular and capsular epithelium. Buerger's disease is commonly associated with superficial thrombophlebitis as well as involvement of the larger arteries, veins and perivascular tissue. The association of this disease with tobacco smoking seems well established. The lesion in temporal arteritis appears to be fundamentally similar to that of periarteritis. There are several suggestive evidences that rheumatoid arthritis may involve allergic mechanisms. One of the evidences is the occasional finding of associated acute arteritis. Mild obliterative endarteritic changes are more frequent. Space will not permit a detailed discussion of these problems.

DISCUSSION

While there is no question of the dominantly allergic nature of urticaria, hay fever, eczema, asthma and the arteritis of serum sickness or sulfonamide hypersensitivity, the extent of the allergic influences in the other diseases noted is not clearly defined. It is of interest that the classic allergic diseases as well as the systemic diseases with prominent allergic implications occur in sites where mucopolysaccharides are normally present, and the reaction involves swelling of these substances. Thus the reactions in urticaria and eczema develop in the subepidermal

reticular tissue which is richly supplied with mucopolysaccharide. In asthma, there is swelling of the subepithelial mucopolysaccharide and of that which lies between muscle cells. In the arteritis of serum or sulfonamide injury, the reaction occurs in the periarterial tissue and between the muscle cells of the vessel wall which are normally bound together by a mucoid ground substance. In glomerulonephritis the mucoid material of the glomerular epithelium is in intimate relationship with underlying proliferating endothelium. The sites of dominant injury in acute disseminated lupus erythematosus and rheumatic fever are sites at which mucopolysaccharide is normally concentrated, notably the skin, synovia, heart valves and the perivascular stroma of the heart muscle. The lesions characteristically involve a swelling of these substances. The idea naturally suggests itself that the mucopolysaccharides of the connective tissues may be the intimate locus of the allergic reaction. It is possible that antibody (and in some instances, antigen) may be attached to the mucopolysaccharides. Further study will be essential to evaluate this thesis.

The work of Meyer¹⁶ indicates that the exact chemical structure of connective tissue mucins is varied in different sites. It is possible that chemically different mucopolysaccharides have varied affinity for different antigenic substances. The composition and physical properties of these substances are also dependent upon nutritional influences. Rinehart and Greenberg²⁴ recently showed that pyridoxine deficiency in the rhesus monkey led to deterioration and swelling of the mucoid materials in arteries with development of lesions closely similar to those of human arteriosclerosis. Ascorbic acid deficiency impairs the formation of the mucopolysaccharide in association with collagen. The author previously presented substantial evidence that nutritional influences, particularly deficiency of vitamin C, may be contributory to the pathogenesis of rheumatic fever.²² Thus, metabolic conditioning influences may be important in predisposing to allergic injury and modifying the response of the tissues to the injury.

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Intensive X-Ray Survey for Tuberculosis in a Rural County

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SUMMARY

In an intensive fast-tempo tuberculosis case-finding survey in a rural county 34,345 residents (73 per cent of all persons 15 years of age or over) had miniature x-ray films of the chest taken. In 256 instances, x-ray findings were consistent with pulmonary tuberculosis. Sixty-eight persons were ultimately reported as having active tuberculosis (one case of active tuberculosis for every 505 persons covered by the survey). Within one year, 57 of them had been hospitalized for treatment. Only four of the 68 cases had been known to the health department before the survey.

The cost of the survey (80 cents per person surveyed and \$444.58 per case of active tuberculosis) compares favorably with that of other surveys.

THE control of tuberculosis in a community necessitates, as a first step, knowledge of the extent of the problem and identification of the persons who have the disease. Because of the relative or complete absence of symptoms in early active tuberculosis, mass x-ray survey is an effective and necessary tool in the tuberculosis control program.

Although, in the past, tuberculosis has taken its greatest toll in urban populations, evidence is accumulating that the death rate from tuberculosis in cities has declined much more rapidly than in rural areas.³ It has even been predicted that urban death rates may eventually drop below rural rates. This trend underlines the need for rapid betterment of health services in rural areas, including more active case finding, follow-up and hospitalization, as well as improvement in rural housing, education, nutrition, and general living standards.

Imperial County, one of the important rural, agricultural areas along the southern border of California, has a population of 62,975.* High tuberculosis mortality rates and a high ratio of far advanced cases reported annually have, for years, indicated that a considerable reservoir of infection existed within the county. Chest clinics were conducted monthly by visiting specialists, but case-finding programs had been limited to several small

scale surveys covering only about five or six per cent of the eligible population. The facilities for the care of tuberculous persons were limited to a 22-bed ward at the county hospital. At every chest clinic, the diagnosis of new cases of tuberculosis was met by the discouraging fact of insufficient beds in which to place the patients. About half of all known deaths from tuberculosis, over a five-year period, occurred in the home and 60 per cent of the persons who died of tuberculosis were not reported as having the disease prior to death. It was significant that 65 per cent of the deaths were among Spanish-speaking people, although only 35 per cent of all the people in the county are Spanish-speaking.

For over a decade, the serious nature of this community problem had impressed itself upon the Imperial County Board of Supervisors, the Imperial County Tuberculosis Association, the county health officer, and the civic leaders in the county. World War II, however, prevented crystallization of plans for the improvement of these conditions. In November 1948 the board of supervisors secured the former naval auxiliary air station. It was converted into a tuberculosis hospital of 195 beds and staffed by two full-time tuberculosis specialists, a visiting tuberculosis consultant and a visiting chest surgeon.

With an adequate number of beds for persons with tuberculosis thus provided, attention was centered on a more complete tuberculosis control program in the health department. Upon the arrival of a new full-time health officer in 1949, tuberculosis was given first priority among many knotty public health problems. A request by the health officer for assistance in conducting an intensive county-wide x-ray survey was approved and sponsored by the Imperial County Medical Society, the Imperial County Tuberculosis Association, and civic organizations. The California Department of Public Health and the California Tuberculosis and Health Association agreed to furnish the necessary equipment and personnel.

The local health and welfare council acted as a steering committee and aided in the formation of the Imperial County Chest X-ray Survey, which then functioned under an executive coordinator. Medical, nursing, and social service policies were determined by local committees.[†] Funds were secured by appropriation by the board of supervisors, the Imperial County Tuberculosis Association, and by public subscription. The locations committee arranged a schedule for placement of x-ray units in every com-

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* U. S. Department of Commerce, 1950 census.

† Organization of the survey was directed by Edward Kupka, M.D., chief of the Bureau of Tuberculosis Control, California Department of Public Health.

munity in the county. An extensive volunteer canvassing committee, armed with this schedule and with information answering possible objections and questions, contacted every home in the county, "selling" the survey by direct personal presentation. A high-pressure publicity campaign was carried out preceding and during the survey, using radio, press, sound equipment, and every other available medium of publicity. The negative approach, emphasizing fear of tuberculosis, was avoided. Other committees organized activities in the schools, business, industry, and agricultural groups. The entire organization was, in every sense, the expression of the desires of the community, and the success of the survey was largely the result of the work done by those in every level of community life who were willing to put time and effort into the task to be accomplished.

Because of the importance of giving the subjects prompt notification of the results of the miniature films, the reading of the films was expedited from the start of the survey; within a week of the taking of the x-ray, either a negative report card or a letter of appointment for a confirmatory large film was in the mails. Persons for whom treatment was urgent were notified directly by a public health nurse.

The procedure for follow-up, as determined by the medical committee, was to take a confirmatory, large film at the retake center in all cases in which the reading of the miniature film suggested pulmonary tuberculosis or significant non-tuberculous conditions. In order to avoid neglect on the part of the patient to follow through in what might prove to be symptomless, active tuberculosis, the medical committee also desired that every effort be made to reach a satisfactory conclusion within a minimum period of time. In line with this policy, a tuberculosis clinician was on duty continuously at the retake center. As soon as the 14 x 17-inch x-ray film was taken, the clinician reviewed both the miniature film and the large wet film. With the information furnished by the epidemiological history taken by one of the clinic nurses and by consultation with the patient, it was possible in many cases to reach at once a tentative conclusion. Thus, it was possible, immediately, to relieve the minds of some persons with the information that in the large films there was no evidence of tuberculosis. If changes consistent with presumably active tuberculosis were observed on the film, the patient was informed of the findings, was instructed as to collection of sputum for examination, and was advised of the probable need of treatment. At the direction of the health officer, some of these patients were referred directly to the social welfare department for investigation of the financial status in anticipation of admission to the sanatorium, and a considerably larger group were advised to secure further examinations either by their own physicians or at the chest clinic. In instances in which there was a history of tuberculosis many years ago and the present findings indicated an obsolete tuberculous lesion with complete absence of symptoms, the subject was informed of

the findings and dismissed with the advice that in the event of recurrence of any symptoms, medical aid should be sought.

If the miniature film was suggestive of some non-tuberculous pulmonary disease and there were sufficient indications in the large film, or if symptoms were present, the subject was referred to his own physician for further investigation. The miniature or large film was made available to the physician in each case, together with other information contained in the records. Persons in whom heart disease was suspected also were referred to their physicians, without 14 x 17-inch films.

RESULTS

Over a period of nearly seven weeks, with a total of 109 unit-days, the team operating the three mobile x-ray units took a total of 37,934 miniature x-ray films, an average of 348 per unit per day. Of the total number of persons surveyed, 3,589 lived outside of Imperial County; over two-thirds of these had come over the border from Mexico for the x-ray survey. The remaining 34,345 were either legal residents of Imperial County or Mexican nationals regularly employed in the county. It is estimated that 75 per cent of the total population—47,231 persons—was made up of people 15 years of age or over. The 34,345 residents surveyed, therefore, represented 73 per cent of the eligible resident population.

In the total of 37,934 miniature films, there were 859 in which there was indication of disease in the chest—of pulmonary tuberculosis in 572 instances (1.5 per cent). Of the 572 persons with suspicion of tuberculosis, 527 reported at the retake center for a large film and examination. The other 45 either could not be located or were referred to other health jurisdictions because they were non-residents.

On the basis of the examination at the retake center, a tentative diagnosis of pulmonary tuberculosis was made in 256 cases and, of these, 68 were ultimately reported as cases of active pulmonary tuberculosis by private physicians, by physicians at the chest clinic, or by physicians at the sanatorium, and 57 of the patients were hospitalized for treatment—51 in the Imperial Valley Sanatorium and the remainder in private or government sanatoria. Only four of the 68 reported cases had been known to the health department before.

Of the 51 patients hospitalized in Imperial Valley Tuberculosis Sanatorium, 43 (84 per cent) had tubercle bacilli in the sputum. Thirty-one (61 per cent) were of Spanish-American descent (of whom

TABLE 1.—*Miniature Film Findings—Imperial County Survey, December 1949 to January 1950*

	Number	Pct.
Total number of persons in survey.....	37,934	
Essentially normal films.....	37,075	97.7
Possible abnormal chest conditions:		
A. Suspected pulmonary tuberculosis..	572	
B. Suspected cardiovascular disease....	151	
C. Suspected other disease.....	136	

TABLE 2.—*Confirmatory (14x17-inch) Films—Imperial County Survey*

Number of Imperial County residents in survey.....	34,345
Number of confirmatory (14x17-inch) films.....	527
Number with x-ray impression of pulmonary tuberculosis:	
Minimal pulmonary tuberculosis.....	169
Moderately advanced pulmonary tuberculosis	59
Far-advanced pulmonary tuberculosis.....	28
	256

TABLE 3.—*Disposition of Tuberculous Patients—Imperial County Survey*

Hospitalized.....	57
Imperial Valley Tuberculosis Sanatorium.....	51
Other California sanatoria.....	6
Returned to Mexico.....	35
Referred to private physicians or chest clinic for further study and treatment.....	112
Dismissed as disease was presumably inactive.....	52
Total.....	256

TABLE 4.—*Admission and Discharge Data—Imperial County Tuberculosis Sanatorium*

Extent of Lesion	Admission (to Dec. 31, 1950)			Discharge (to Dec. 31, 1950)		
	Male	Female	Total	Male	Female	Total
Minimal.....	3	2	5	1	1	2
Moderately advanced.....	21	11	32	4	0	4
Far advanced.....	11	1	12	1	0	1
Meningitis.....	0	1	1	0	1	1
Observation.....	0	1	1	0	1	1
	35	16	51	6	3	9

21 were born in Mexico), 17 were native-born white, two were Filipino, and one a Negro. Only three had been residents of California less than five years. Nineteen were engaged in some type of agricultural work; 11 were housewives. Males outnumbered females by more than two to one. Thirty-two were over 40 years of age.

During 1950, eight patients were discharged from the Imperial County Tuberculosis Sanatorium, and one died. The patient who died, a woman, had tuberculous meningitis at the time of admission. One patient was discharged as non-tuberculous. The rest were either transferred to other institutions or left against medical advice. Because of the comparatively short period of time since their admission, no patients have been discharged as having inactive or arrested tuberculosis.

A phase of the tuberculosis control program which constitutes an especially difficult problem in Imperial County is the ease with which citizens of Mexico can cross the border.¹ Since 1945, no fewer than 45,000 "crossing cards," which permit the holders to enter the county from Mexico for employment by the day or for business purposes, have been issued. The state of health of the holders of these cards is not investigated. The importance of this practice to the health of Imperial County residents can be judged by the results of a spot check of 2,556

miniature x-ray films taken in Calexico, near the border. Forty-seven per cent of the subjects gave Mexicali as their home address. In 4 per cent of the miniature films of Mexicali residents, abnormalities consistent with pulmonary tuberculosis were noted, compared with 2.4 per cent with regard to residents of Calexico. It has been suggested that some of the Mexicali residents crossed the border for confirmation of an earlier diagnosis made in Mexicali, but the important facts remain that they were able to cross the border freely, and that those with active tuberculosis thus constitute a health hazard to persons with whom they may come into contact in Imperial County.

COST

The cost of the survey was \$30,230.46, of which 67 per cent was borne by the California Department of Public Health and the California Tuberculosis and Health Association, and 33 per cent locally. One-third of the local cost was carried by the Imperial County Tuberculosis and Health Association, and a little over one-third by the Imperial County Health Department, and the rest by public contributions and donations by the cities of El Centro and Calexico, labor unions, and others. Nearly half of the local health department expenditure was for regular personnel, assigned to the survey. The services of the large number of volunteer workers, without which the survey would have been impossible, are not included.

The total cost per person covered by the survey was 80 cents (of which the local share was 26 cents). The cost per person with a presumptive (x-ray) impression of pulmonary tuberculosis was \$118.09, and the cost of finding each of the 68 reported cases of active tuberculosis was \$444.58. The cost per patient hospitalized was \$530.36. These figures compare favorably with results elsewhere. For instance, in the Seattle survey, the cost per active case discovered was \$685.²

DISCUSSION

The policy laid down by the local medical committee whereby every person who had a confirmatory film was interviewed by a physician at the time the retake x-ray was made, proved to be very efficient. Not only was the need for an additional visit done away with in most cases, but there was a psychological advantage in discussing with the individual, at the time his interest was greatest, the question—what needs to be done? A complete, final clinical evaluation still was necessary, of course, but a valuable start was made and, in some cases of obviously active advanced disease, hospitalization was effected in a very short time. In the majority of instances, the patient was referred to a private physician or the chest clinic for study and evaluation, with treatment or referral to the sanatorium.

Beyond the results of the survey in the number of cases of previously unrecognized tuberculosis discovered and the number hospitalized, other assets

were apparent. The survey indicated the need for improvement in the control of those with active tuberculosis crossing the border, whether they are so-called "nationals," who enter the United States under well-defined contract, or residents from across the border who carry a "crossing card," or illegal entrants.

The effect of the survey was agreeably apparent in increased interest in tuberculosis during the following year. One evidence of this interest was an awareness of the cost of the entire tuberculosis program, resulting in an investigation into the costs of treatment. The end result was that those who at first complained of the cost became firm supporters of the sanatorium and of the board of supervisors in their wise provision for adequate care of persons found to have active tuberculosis. There was also a well-defined increase in interest on the part of the public at large in the health program of the county, not only in tuberculosis but in other fields as well. Finally, in the year following the survey, there was an increase in the investigation and diagnosis of

diseases of the chest, particularly tuberculosis, as compared with the pre-survey period. In most cases in which tuberculosis was diagnosed in the year following the survey, the patient had not been included in the survey. In several instances, however, the patient had had a survey film and a "negative" report upon it. In those instances, comparison of the more recent film with the survey miniature film indicated that the disease was new, that the miniature film taken in the survey was really "negative." All of these benefits, often considered as secondary to case-finding, are of sufficient value in themselves to justify the expense and effort put forth in carrying out such a survey.

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Surgical Principles of Incising the Renal Parenchyma

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SUMMARY

Attention, at nephrotomy, to the anatomy of the kidney will guide incision into a less vascular area and will result in less destruction of tissue. Complete exposure and gentleness of control of the renal pedicle are mandatory. Conservative surgery—removing renal lesions and preserving the remaining functioning tissue—is successful when the proper techniques of incision and hemostasis are employed. With proper drainage and control of infection, nephrotomy is not necessary. Three illustrative cases are presented.

Full use of the operating room x-ray machine is helpful. Mattress sutures in the plane of the arteries is the commonest method of parenchymal hemostasis. Although helpful, Gelfoam® and Oxycel® probably predispose to infection which is the commonest cause of secondary hemorrhage.

TO all who perform renal operations the principles of incising the renal parenchyma are of vital importance. Yet these principles receive far too little consideration. Viewpoints differ widely regarding the indications for nephrotomy, the methods of making the incision and the technique of obtaining hemostasis. The ideal renal opening should damage the kidney as little as possible, and the closure of the wound must obtain complete hemostasis with little or no destruction of renal parenchyma. Although these two criteria cannot always be met, constant attention to the vascular supply of the kidney, the lesion present and its position in the renal substance, and the judicious use of hemostatic methods, drainage, and antibiotics will help to conserve renal tissue and accomplish good hemostasis.

The brisk bleeding encountered with parenchymal incision has led to discard of the idea of the "bloodless line." However, such is the vascular anatomy of the kidney that there is definitely a line along which less arterial bleeding will be encountered.

ANATOMY

The renal pelvis is either single or bifid, and extrarenal or intrarenal. With the bifid pelvis a wedge of cortical substance extends between the upper and middle calyces. The longitudinal axis of the pelvis runs from the posterior surface of the kidney obliquely to the outer third of its anterior surface.

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The renal artery lies superior to the vein, passes behind the vena cava on the right, and lies behind the vein on the left. The right artery is usually superior to the left. The renal arteries are true endarteries. They radiate from the hilus in a fan shape, and occlusion or destruction of the main branches at the hilus, or near their origin, produces gross destruction of renal substance. The arteries that enter the parenchyma anterior to the pelvis remain anterior until the capsule is reached, and the posterior arteries remain posterior.

In corrosion specimens the anterior and posterior arterial trees can be separated without damaging either. The line of division is the so-called "bloodless arterial line." The veins follow the course of the arteries, but there is free branching and anastomosis and, therefore, no bloodless venous line.

Normally, with a posterior renal pelvis three-quarters of the arterial supply is from the anterior arterial branches and one-quarter from the posterior arterial tree. The upper and lower renal poles are supplied by the anterior arterial branches, and the posterior arterial supply covers only the posterior three-quarters of the renal parenchyma. The arterial division is dependent on the position of the pelvis, and the line of division follows the pelvic



Figure 1.—Longitudinal axis of "normal" pelvis running obliquely from inferior pole to anterior portion of superior pole.

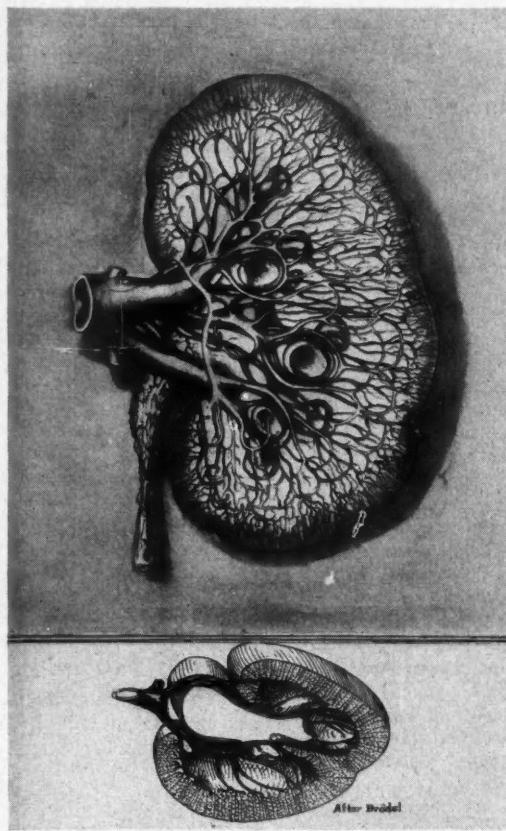


Figure 2.—Arterial and venous circulations of kidney. Note anastomosis of veins around calyces and true end-organ nature of arteries in cross section.

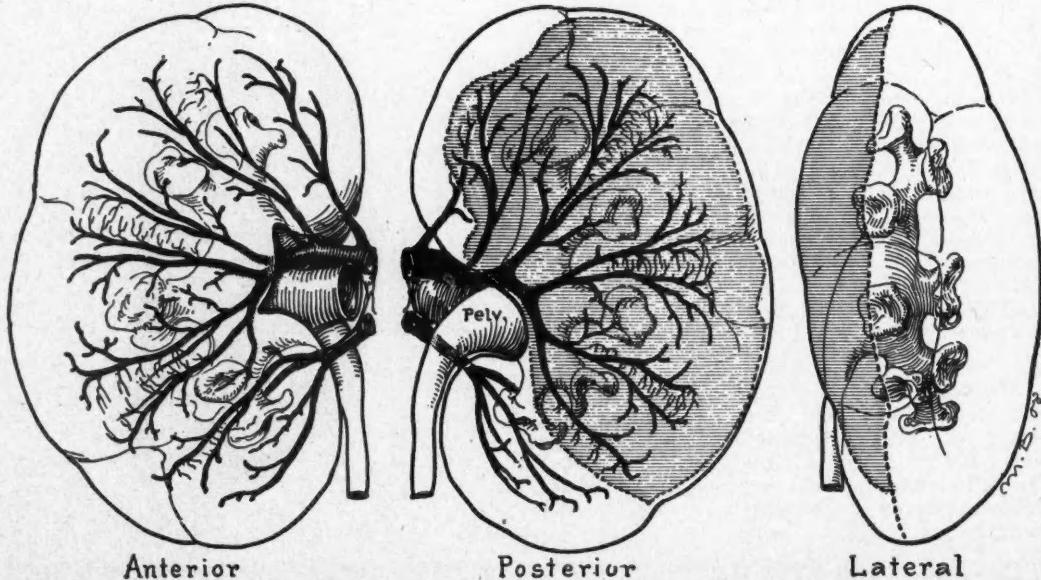


Figure 3.—Division of anterior and posterior arterial trees in "normal" kidney.

axis. This division usually is 1 cm. posterior to the lateral convex border. If the pelvis is anterior, the posterior arteries predominate and the line of arterial division is anterior to the lateral convex border. If the pelvis is mesial the line of arterial division is in the midline, with the lower pole always supplied by the anterior arterial tree.

With a bifid renal pelvis, the anterior arterial branching may send large vessels to the posterior parenchyma, thereby excluding any possibility of a bloodless line.

Because of the numerous variances from the norm of three-quarters of the arterial supply being anterior and one-quarter posterior, it is easy to understand why the bloodless line is considered a will-o'-the-wisp. However, mere attention to simple anatomic facts may help to guide the surgeon to a less arterially vascular area. Aberrant vessels may simplify or complicate the picture, but the area of parenchyma supplied by each vessel may be readily ascertained by simple digital compression.

INCISION

With exposure of the kidney the disease process present of course dictates the area of incision.

The *sine qua non* of renal parenchymal incision is that the vascular pedicle should always first be mobilized and available to immediate pressure control before the parenchyma is opened. If it is necessary to control hemorrhage by compression of the renal pedicle, the methods of choice are soft rubber catheter constriction, digital compression and rubber-shod clamp compression. When using catheter control, great care should be taken not to twist the vessels. Compression of the pedicle with the fingers is kindest to the pedicle but leaves less room for operative procedures. Rubber-shod clamp compres-

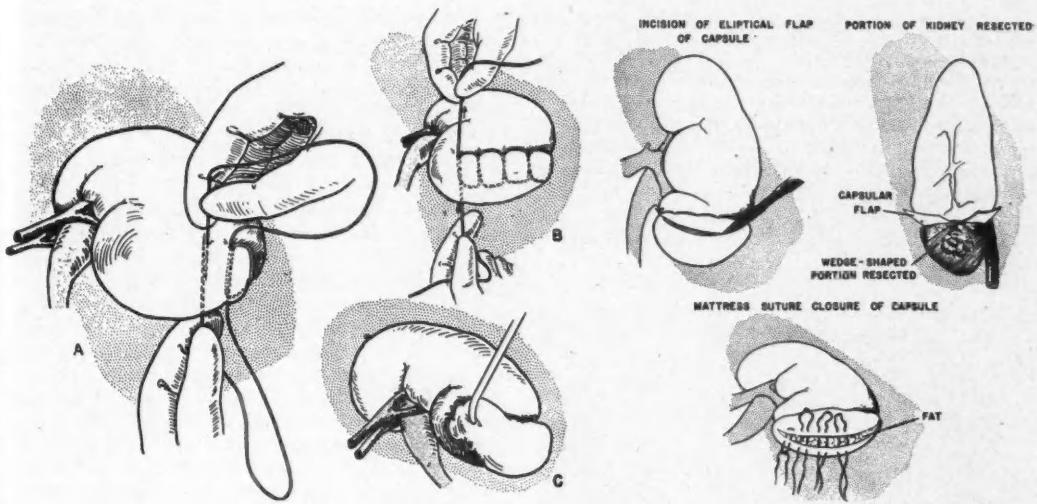


Figure 4.—Technique of Engel for resection of the renal pole.

sion is effective but subjects the pedicle to more than a little trauma. The work of Schieber, Giraldi and Vermulen⁹ has shown that the pedicle may be clamped probably for up to 30 minutes without demonstrable renal damage. Obstructing the vein alone produces the greatest renal damage because the kidney becomes engorged. The artery alone may be compressed with no ill effect. During pedicle control, if the parenchyma becomes dusky and the kidney engorged, it is evident that the venous return has been impeded, but that the arterial flow has not. This should be immediately corrected by applying greater force in pedicle control to prevent the damage resulting from impaired venous return.

If it is necessary to incise a solitary kidney, rubber-shod clamp control of the pedicle should never be used. The danger of thrombosis of the pedicle is very real, and the increased trauma due to the clamps unnecessarily adds to the risk of the procedure. Digital pressure is by far the safest method of control with the solitary kidney, and, if the extra hands in the wound do not prolong the procedure, this type of pressure should be used.

There is now a commendable trend toward the preservation of kidney tissue. Heminephrectomy for superior or inferior pole lesions such as stone in dilated calyces with strictured infundibula, calyceal diverticula and even tuberculosis is being done with success, not to mention Vermooten's¹⁰ partial resection of a kidney for carcinoma. Heminephrectomy, after the method of Engel,² for a stone in a strictured calyx may, in the solitary kidney, be less traumatic than pedicle constrictions and nephrotomy and nephrostomy. When this technique is used, it is not always necessary to apply pedicle control. The cobbler's stitch gives adequate gross hemostasis.

With small stones and intraparenchymal lesions, stereoscopic and oblique films and any other informative method at hand must be utilized in an at-

tempt to determine the exact site of the lesion before operation. If the small lesion be radiopaque, the operating room x-ray machine should be used freely. This will help in pinning down the trouble and will minimize the amount of parenchymal dissection necessary to accomplish the aims.

Resection of lesions bedded within the mid-pole of the kidney is a relatively simple procedure. The kidney is first well mobilized and the renal pedicle controlled with a soft rubber catheter. The mid-renal lesion is then best removed by sharp dissection with a scalpel. The electrocautery blade can be used, but burn hemostasis leaves behind sloughing renal tissue with the excellent chance of secondary hemorrhage, fistulae, infection and the increased loss of renal tissue. The resultant defect can be obliterated by approximation of the wound edges or, if too great, can be filled with fat or Oxycel.[®] If any portion of the lesion, such as a calyceal diverticulum, communicates with the renal pelvis, so that there is a free exchange of urine, reasonable care should be taken in obliterating the communication with a purse-string 4-0 chromic or plain gut suture in order to do away with one more possible cause of urinary fistula. If the papilla of the excised wedge of parenchyma is not adequately obliterated, the danger of fistula formation will be increased.

Following are three illustrative case reports:

CASE REPORTS

CASE 1: The patient was a 73-year-old woman with a solitary kidney and large pelvic stone. At operation an unsuspected neoplasm was observed. Locally, it appeared to be confined to the superior pole, and electrocautery dissection of the lesion was done. The patient died two months later of uremia. At autopsy chronic pyelonephritis was noted. It cannot be stated whether the amount of renal tissue that remained after operation was adequate for survival. Certainly, electrocautery dissection destroyed more tissue than scalpel dissection would have.

Cases 2 and 3 are almost mirror images. Both patients were men 50 years of age, and both had calyceal diverticula, or hydrocalycosis with stones. In Case 2 the lesion was opened, the stones removed and the point of communication with the renal pelvis fulgurated and then closed with a purse-string 4-0 atraumatic chromic suture. The roof of the cystic area was resected and the parenchymal walls were fulgurated. The dead space was then obliterated with fat and mattress sutures.

In Case 3 the entire lesion was removed with the scalpel. The remaining cavity was handled in the same way as in Case 2.

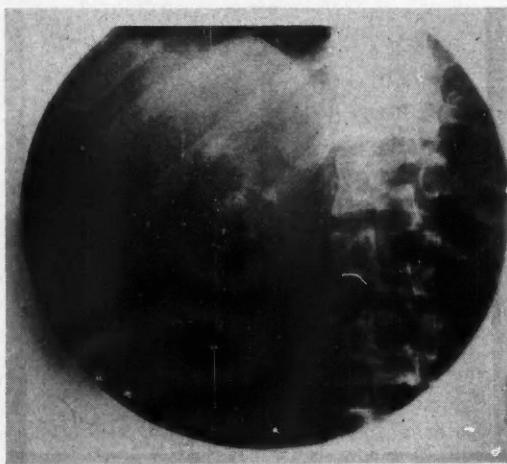


Figure 5 (Case 2).—Communicating calyceal diverticulum with stones.

With questionable renal neoplasms, Weyrauch and co-workers¹¹ have shown that, after control of the pedicle, it is permissible to cut down directly upon the lesion and obtain a specimen for biopsy and frozen section. This is in contradistinction to the time-honored dictum that nephrectomy should be done if there is any reasonable suspicion of neoplasm.

In cases of staghorn calculus, posterior pyelotomy with gentle exploration of the pelvis and calyces is advisable. In some instances, if the stone is not excessively branched it can be extracted in toto through the pyelotomy. If the pelvis is intrarenal or if the surgeon prefers incision of the parenchyma, incision is best made from within the pelvis outwardly, in the region of the "bloodless line." A curved blade or wire or chromic gut on a large curved needle is satisfactory. The within-outward incision is the best way of attempting to utilize the end-arterial nature of the renal arteries for the surgeon's needs. The within-outward wounding is most likely to tend to separate the anterior and posterior arteries.

With isolated stones, direct incision over the calculus is the most appropriate and quickest method of extraction.

With incision into the renal parenchyma when gross infection is present, the question of nephrostomy or pyelostomy arises. If drainage is adequate without a nephrostomy tube, nephrostomy need not be considered. If adequate drainage seems unlikely in the immediate postoperative period, nephrostomy is in order. The nephrostomy may enhance deep-seated pyelonephritis about the tube, and therefore

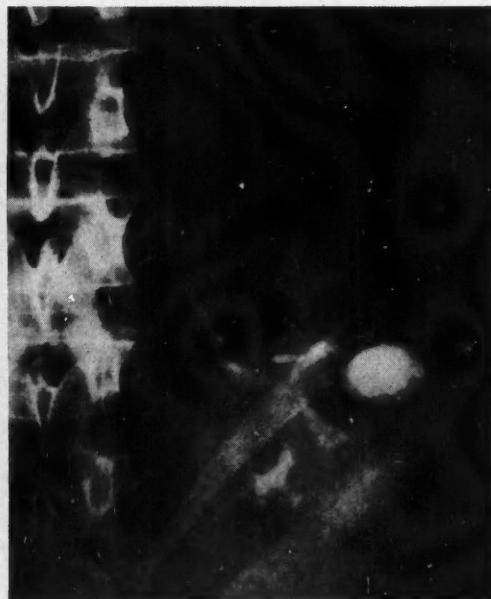


Figure 6 (Case 3).—Communicating calyceal diverticulum, preoperative and postoperative films. Note normal appearance of postoperative kidney.

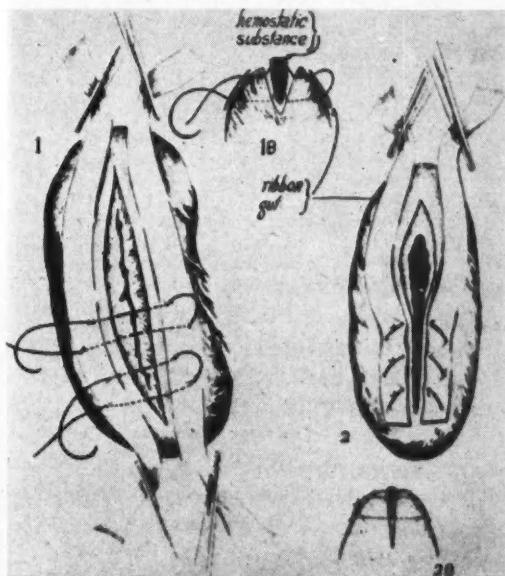


Figure 7.—Technique of Dorsey for anatomic application of mattress sutures in the plane of the arteries.

if the extrarenal pelvis is adequate, pyelostomy is much kinder to the parenchyma. The fact to remember is that infection with improper drainage, not nephrostomy or incision into the parenchyma, is the most common cause of secondary renal hemorrhage. Deep mattress sutures should not be placed about a nephrostomy tube, because the necrosis of tissue is too great and secondary bleeding may result when the tube is removed. Only capsular sutures should be used to fix the catheter in place.

HEMOSTASIS

Once the parenchyma has been incised and the problem at hand settled, the question of hemostasis arises. The method of controlling bleeding in which the least amount of tissue is destroyed is obviously the best. A myriad of methods have been devised, the reason being that no one technique of renal parenchymal hemostasis is satisfactory in all instances.

Simple mattress suture at right angles to the renal wound is the oldest and commonest manner of achieving effective hemostasis. The hemostatic retroperitoneal fat or muscle is commonly used between the wound edges in this and all other techniques of wound approximation in renal operations. The fat becomes incorporated in the scar and does not act as a foreign body.

The very real objection to the usual kind of mattress suture through the parenchyma is the end-artery nature of the renal arterial tree. The closer that deep mattress sutures, at right angles to the arterial tree, are placed to the hilus the greater the amount of renal tissue completely deprived of any further arterial circulation. These mattress sutures, which

cut across the end-arteries, should be reserved for the capsular and subcapsular portions of the kidney.

If mattress sutures are to be used deep in the parenchyma, the technique of Dorsey¹ is the best. Dorsey uses ribbon gut to prevent the sutures from tearing through, and then places the sutures in the plane of the vessels, so that good approximation is achieved without obliteration of the circulation.

No. 00-000 chromic gut is heavy enough for all mattress sutures. If the renal pelvis is opened, 0000 chromic or plain gut is used for closure. The parenchyma is then approximated over fat with linear mattress sutures. No. 000 continuous plain gut is satisfactory for the capsule.

Hess and co-workers³ carried out partial renal resection without the aid of sutures in three cases. Fat or muscle was held against the cut surfaces and bound in place with unrolled sheets of Oxycel. A simple hot pack and digital pressure with approximation of the wound edges provides very effective hemostasis.

Lowsley's subcapsular and extracapsular ribbon gut method of renal repair⁶ has won wide favor. If a defect is present or the bleeding brisk, a slice of retroperitoneal fat is placed in the wound. As in all ways of renal repair, only enough tension is applied to the suture to achieve gentle approximation of the wound edges.

In recent years, Gelfoam[®] with thrombin, fibrin foam and Oxycel have been used in place of fat or muscle. MacDonald and Mathews⁷ were very favorably impressed with the use of Gelfoam and fibrin foam in renal operations. They used only capsular sutures, placing the hemostatic substances in the wound, and encountered no secondary hemorrhage or fistulae. The Gelfoam remains longer than fibrin foam and forms a scaffold for granulation. Hinman and Babcock⁴ are not as favorably impressed. Experimentally, they showed that if Gelfoam and Oxycel are used in the presence of gross infection without drainage, a definite foreign body reaction and abscess formation result.

The judicious use of modern antibiotics, after identification of the infecting bacteria, is the greatest preoperative and postoperative aid to hemostasis.

CONCLUSION

To achieve satisfactory results from operations on the renal parenchyma, the chief objective is to conserve the normal uninvolving secreting tissue.

Attention must be given to the architecture of the vascular supply, with due respect for the nature of the renal arteries, which are true end-arteries.

Proper methods in the control of the pedicle, heminephrectomy, and renal biopsy may permit preservation of renal tissue and leave the patient with two good kidneys. Resection of deep-seated parenchymal lesions, such as calyceal diverticula, is now an established and noteworthy procedure. It is now permissible to use biopsy in cases of suspected renal neoplasm.

Postoperative nephrostomy is not always necessary in the presence of infection if drainage is good and effective antibiotics are used. Infection is the most frequent cause of postoperative hemorrhage.

There is no one satisfactory method of hemostasis. Hemostasis is best served by attending to the principles of vascular anatomy, postoperative drainage, control of infection, and gentle accurate approximation of tissues. Mattress sutures should always be placed in the plane of the vessels so that important distal arterial branches are not obstructed. Retroperitoneal fat is a more physiologic material for filling defects and controlling bleeding from raw surfaces.

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Adenotonsillectomy

Indications and Application of Surgical Techniques

EMERY LEIVERS, M.D., Woodland

SUMMARY

As a result of audiometric surveys in public schools, many children are being referred to physicians for further examination and definitive treatment. Therefore, the indications for adenotonsillectomy are reviewed.

It is believed that the operation should not be done in infants with congenital deafness until full study of the problem has been completed, and that it should not be done routinely in children in whom there is no positive indication for it. When the operation is done, as much normal mucosa as possible should be saved. Closing the superior aspect of the incision with chronic suture is recommended as a means of avoiding a vertical band of scar tissue which may divide the tonsillar fossa into two parts.

IN California it is becoming increasingly apparent that otolaryngologists will have to work closer with the public school systems. In audiometric studies being done by school nurses it has been found that a large number of children have conditions which necessitate further examination and referral for definitive care. Since one phase of this care includes the adenotonsillectomy problem, it might be well to review again the indications for this operation and to discuss certain surgical techniques in the procedure.

Shambaugh⁵ and Fowler² have written excellent articles on this topic and leave little to be added.

Indications for adenotonsillectomy are:

1. Deafness, conduction type, caused by:
 - a. Eustachian tube obstruction
 - b. Serous otitis media
 - c. Purulent otitis media, acute, recurrent or chronic
2. Nasopharyngeal obstruction from adenoidal mass with associated mouth breathing, purulent rhinitis and purulent sinusitis.
3. Oropharyngeal obstruction from extreme hypertrophy of tonsils
4. Recurrent tonsillitis or peritonsillar infection
5. Recurrent cervical adenitis
6. Diphtheria carriers

It is the author's impression, after examining a large selected group of children with deafness, that eustachian tube obstruction and serous otitis media

account for a large percentage of the new cases of deafness in school children. Fortunately, in most such cases surgical care alone is effective. For a few patients radiation therapy at a later date is necessary. The beneficial results obtained with these groups have stimulated school teachers and nurses to ferret out all children with possible deafness.

The therapeutic value of carefully done adenotonsillectomy in cases of purulent otitis media is well established.

Nasopharyngeal obstruction from adenoidal mass with associated mouth breathing is common. The relief after operation is gratifying. In a good environment, a child with concurrent purulent rhinitis or sinusitis is usually promptly relieved of these conditions also. Nasal obstruction is often a manifestation of an allergic state. However, this is a separate problem and must be dealt with before operation is considered. Clein¹ stated that undiagnosed allergic disease is a factor in regrowth of lymphoid tissue in the tonsillar fauces and adenoid area.

Oropharyngeal obstruction from extreme hypertrophy of the faucial tonsils is not so common. Difficulty in swallowing solid food and altered voice are often the principal complaints.

Recurrent tonsillitis or peritonsillar infection are considered a true indication for operation.

Recurrent cervical adenitis is an indication for surgical care providing the child has been studied carefully. Search should be made for a source of infection other than the tonsils. Blood dyscrasias, lymphoblastomatous and congenital cysts should be considered.

Finally, even though diphtheria is becoming an infrequent disease, occasional carriers are found who do not respond to medical treatment.

Operation should be delayed in infants with suspected complete congenital deafness; and it should not be done routinely, in the absence of positive indications.

It is the author's opinion that infants with suspected complete congenital deafness should not be subjected immediately to operation on the throat. It seems more rational to study the child completely to determine the proper regimen. At some later date, the operation can be done if it is indicated.

Often a child is taken by a parent to a physician for adenotonsillectomy in preparation for school; but if the history, results of examination and audiogram give no true indications for it, the operation should not be done. The child should be examined at annual intervals, and if more positive indications develop, the operation then can be carried out.

Presented before the Section on Eye, Ear, Nose and Throat at the 80th Annual Session of the California Medical Association, Los Angeles, May 13 to 16, 1951.

It is obvious that many possible indications for operation have been omitted from the above list. It is probable that every surgeon has achieved bene-

ficial results in a variety of other diseases. However, it has been the author's experience that the results of operations done on the basis of less well defined indications are so varied that the conditions for which surgical treatment was carried out cannot be listed as true indications.

Since there are so many references in the literature to the rheumatic fever problem and its relation to tonsillectomy, it cannot be passed without comment. Higbee³ summarized this very well: "Once rheumatic fever is established, tonsillectomy should be performed only for reasons of general health and increased resistance of the patient." Higbee mentioned the danger of converting a subclinical form of the disease into a very active virulent form. Nelson⁴ studied a group of rheumatic fever cases at the U. S. Naval Hospital at Dublin, Ga. He found no adverse effect from tonsillectomy in a highly controlled group of cases but was unwilling to recommend routine tonsillectomy for patients convalescent from rheumatic fever. At Woodland Clinic it is deemed justifiable to carry out the operation in

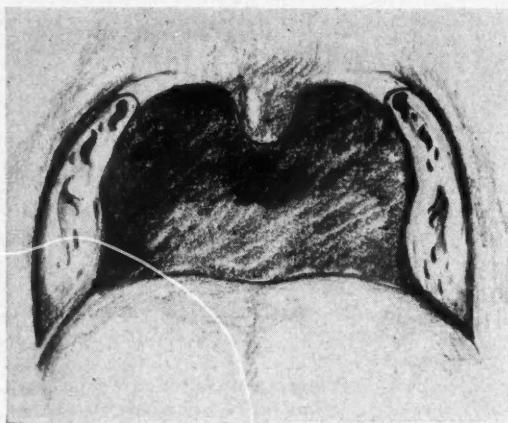


Figure 1.—Diagrammatic drawing of oropharynx.

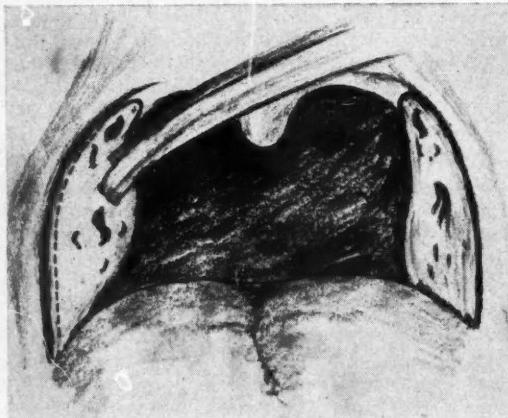


Figure 2.—Dotted line indicates line of incision.

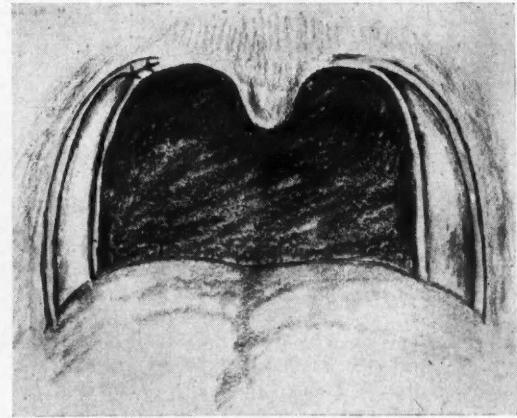


Figure 4.—Sutures in place in the right fossa.

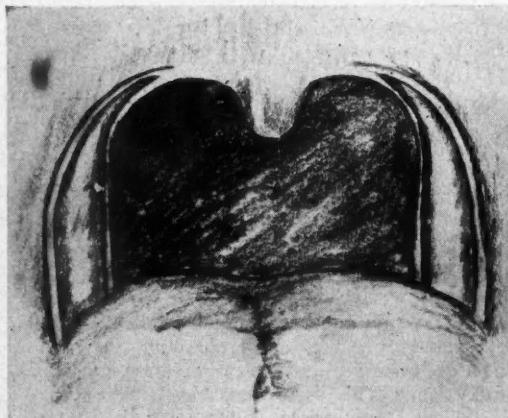


Figure 3.—Diagrammatic drawing showing a margin of normal mucosa along the pillar edges.

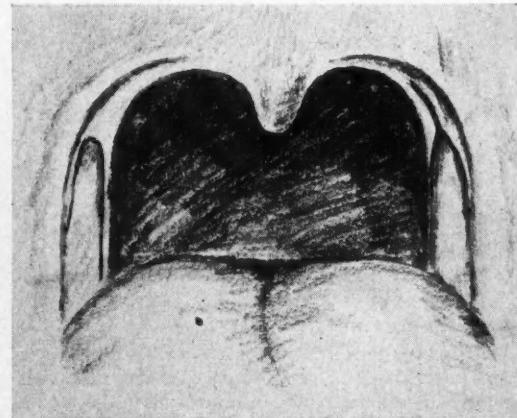


Figure 5.—Diagrammatic drawing showing the difference in healing and beginning formation of the vertical scar.

cases in which the patient has recurrent episodes of tonsillitis with associated exacerbations of rheumatic fever.

PROCEDURE

Each surgeon has his own modified procedure, and no attempt is made here to alter these methods. In order to attain more rapid healing and to have minimal scarring, it is urged that the maximum of normal mucosa be left along the anterior and posterior pillars and also in the supratonsillar fossa. Whether this is done with scissors or blade seems to make little difference. However, the few millimeters of normal mucosa left is of definite advantage.

In order to gain a little in healing and also further prevent scarring, the author suggests using a 4-0 chromic atraumatic suture in the very superior aspect of the incision.* Two simple sutures are placed just through the mucosa of the anterior and posterior pillar. The closure is attained not by suturing through the pillars themselves but by utilizing the normal mucosa which was saved. This closes the superior portion of the incision for about

* The author uses a Davis and Geck ureteral atraumatic needle and 4-0 chromic suture No. 1691.

5 to 8 millimeters. In a number of cases the author sutured one side and left the remaining side as control. On the sutured side the superior aspect of the fossa healed with a smooth mucosa with a minimal scar and an advancing concave edge. This was in contrast to a fine vertical scar on the control side and an advancing inverted V edge, which in the author's opinion produces the central vertical band of the scar tissue which often divides the tonsillar fossa into two parts (see illustrations).

Woodland Clinic.

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Discussion by LELAND HUNNICKUTT, M.D., Pasadena

There is an old Chinese proverb which says that after an apple becomes ripe the next thing that happens is that it rots. We might apply this thought to some of our surgical procedures. If we do not improve certain techniques, stagnation may occur. Dr. Leivers has described what he believes is an improvement on a standard technique. We should welcome any new suggestion and evaluate it.

Anything that helps prevent scarring and promotes healing is all for the good. I have used the suture which he recommends in about 50 cases, doing it on only one side for a comparison study. In most cases the results were as described by Dr. Leivers. Last winter in a postgraduate course in Los Angeles, Dr. Widford Belknap of Portland, Ore., described his method of completely obliterating the tonsil fossa. He reported that when this method was used

postoperative hemorrhage rarely occurred and that healing was rapid.

Dr. Leivers' indications for tonsillectomy include the major ones most of us agree with. We must be on the alert for other conditions causing infected tonsils and adenoid tissue. Among them are sinusitis, allergic disease or secondary infection from poor drainage in the nose and sinuses, or allergic disease alone, resulting in apparent hypertrophy of lymphoid tissue, in infected teeth, infected gums, and pyorrhea.

Adenoid tissue in relation to deafness is now very much in the foreground because of the statewide examination of school children. We must cooperate in this fine work and be alert to spot those children we can help.

Radiation Therapy in Breast Cancer

A Preliminary Report on the Application of a Technique of the McWhirter Type

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SUMMARY

A modification of the radiation technique advocated by McWhirter was used in the treatment of 12 patients with carcinoma of the breast. On the basis of observations it is believed that the method has definite merit. It is believed that for patients who have had radical mastectomy, radiotherapy should be protracted over a period of more than three weeks.

IN 1935 the surgical staff at the Royal Infirmary in Edinburgh began a careful evaluation of the methods of treatment of carcinoma of the breast, and in 1941 agreed upon a course of action that has since been employed.¹ Because the name of Professor Robert McWhirter has been prominent in world literature concerning the treatment of carcinoma of the breast, the method employed at the Royal Infirmary is commonly known as the McWhirter technique.

The decision to employ simple mastectomy and radiotherapy was based upon observations concerning the effectiveness of many different methods of treatment, and the following were important in influencing the staff of the Royal Infirmary to effect the change:

"1. When the disease is confined to the breast, surgery gives good results. Surgery is thus an effective method of treating the disease in the breast, and it was decided that surgical removal should be continued.

"2. While at first sight surgery might appear to be the most satisfactory method of treating the axilla, a more careful examination will show that its value is, in fact, very limited. It is true that the results are excellent when the axillary glands are not involved, but if there are no malignant cells in the axilla, it would appear unnecessary to dissect it, for the removal of normal lymph nodes cannot influence the results. On the other hand, when the axilla is secondarily involved, there is universal agreement that radical mastectomy often fails to save the life of the patient. Since, therefore, surgical removal of the lymph nodes is unnecessary when the axilla is

not involved and often fails when the axilla is involved, it was decided to treat the axilla by radiotherapy to see if better results could be obtained.

"3. In many forms of cancer radiotherapy has now become the treatment of choice, and in breast carcinoma it has been shown that postoperative recurrences can be effectively treated by this means. Immediate postoperative radiotherapy will greatly reduce the number of local recurrences. From these observations it must be concluded that radiotherapy can destroy breast cancer cells and that radiotherapy is at least an alternative method of treating the axilla."²

The technique of treatment as described by McWhirter¹ for operable cases, that is, clinical Stages I and II, is briefly as follows:

1. Simple mastectomy and removal of readily accessible lymph nodes lying outside the axillary fascia, followed by:

2. One full course of roentgen therapy begun as soon as possible after wound healing, preferably within two weeks.

3. Radiation to four fields daily. The axilla is treated through an anterior and a posterior opposed field. The chest wall is treated through two opposed tangential fields (Figure 1).

4. A minimum tumor dose of 3,750 r is given in a period of three weeks.

5. Use of roentgen ray equipment capable of producing x-rays of the quality of 3.7 mm. Cu HVL.

The results of treatment of breast cancer by that method at the Royal Infirmary since 1941 indicate survival of 43.7 per cent of all patients with carcinoma of the breast referred for treatment.

Since January 1, 1950, the method advocated by McWhirter has been employed (with some modification) in the treatment of 12 patients with carcinoma of the breast at Letterman Army Hospital in San Francisco. The youngest patient in this group was 30 years of age and the oldest was 66 years. The average age was 49. They were grouped, in accord with Portmann's classification of clinical staging, as follows: Stage I, four cases; Stage II, four cases; Stage III, two cases; Stage IV, two cases. Simple mastectomy was carried out in six cases (three Stage I, one Stage II, one Stage III, one Stage IV). Radical mastectomy was done in four cases (one Stage I, three Stage II). Biopsy was done in two cases classified as inoperable (one Stage III, one Stage IV). Both of the patients with Stage IV

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carcinoma died, one from extensive visceral and skeletal metastases and the other from pulmonary metastases complicated by bronchopneumonia and suppurative bronchiectasis.

The purpose of this presentation is to enumerate the technical difficulties experienced in administering the treatment; stress the complications which may arise when the technique is applied to patients who have had radical mastectomy; point out that the skin reaction is rather severe in most cases, particularly the axilla; and point out that the tumor dose recommended by McWhirter can be given with a beam of less than 3.7 mm. Cu HVL.

Technical Problems: When treatment is begun soon after radical mastectomy, patients are loath to move and it is difficult to place them in proper position for treatment of all areas. This applies particularly to the treatment of the anterolateral tangential portal which requires abduction of the arm. The time required to treat such patients may be as much as one hour and fifteen minutes daily.

Complications: Moderate to severe edema of the arm developed in four patients who had radical mastectomy in from four to eight weeks after completion of radiation therapy. This subsided after about six weeks in three instances, and persists in

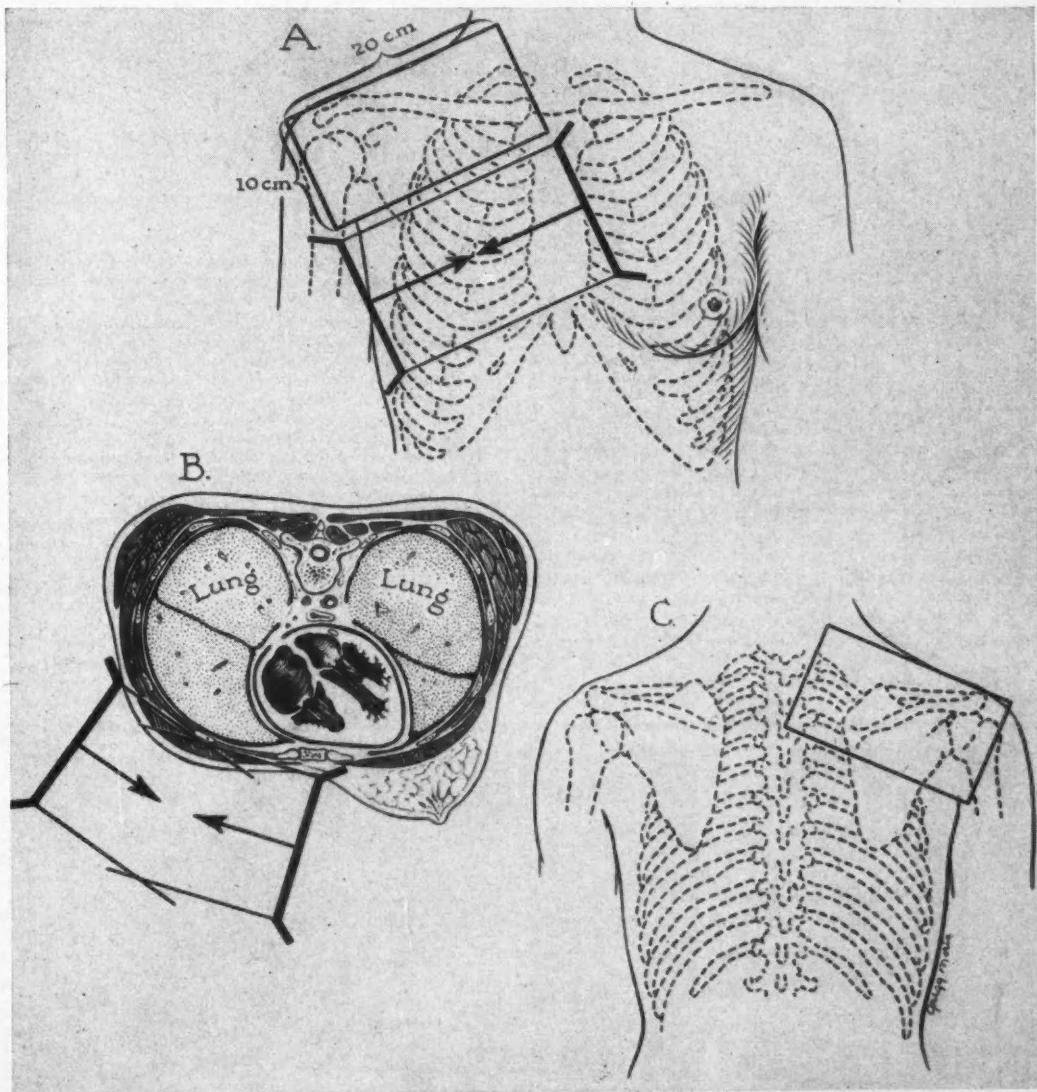


Figure 1.—Diagram of treatment portals used. Bolus bags containing rice were used on the tangential fields to the chest wall.

slight degree after 20 weeks in one. It is quite possible that similar edema would have developed in these cases after operation alone. In one case a draining sinus persisted three months after completion of treatment. This may have been due to necrosis of the remnant of the pectoralis major muscle at its insertion on the humerus following division and ligation (see Table 1).

Skin Reactions: In most cases a rather pronounced moist epidermitis developed and reached its height in ten days to three weeks after completion of radiation therapy. In all cases this was most severe in the axilla. The skin reaction on the chest wall was more severe in patients who had had radical mastectomy than in those who had had simple mastectomy (Figures 2 and 3). McWhirter does not

TABLE 1.—*The Therapy and Immediate Results of Therapy*

Case	Radiotherapy Instituted (postoperative days)	Tumor Dose Axilla	Days	Tumor Dose Chest Wall	Height of Reaction (weeks)		Severity	Comments
					Days	Height of Reaction (weeks)		
SIMPLE MASTECTOMY								
1	11th	3,848 r	15	2,640 r	15	3-4	Moderate	None
2	15th	3,724 r	14	3,452 r	14	4	Mild to moderate	None
3	8th	3,892 r	16	2,448 r	14	3	Moderate	None
4	10th	3,810 r	17	2,652 r	15	3	Severe	Patient was somewhat obese and had severe skin reaction.
5	8th	2,600 r	12	2,040 r	12	—	—	Treatment discontinued because of poor general condition. Patient died of visceral and skeletal metastases three weeks later.
12	5th	3,888 r	21	3,456 r	21	2	Moderate	Patient received a calculated dose to the uterus of 1,736 r in 16 days.
RADICAL MASTECTOMY								
6	15th	3,840 r	15	2,448 r	15	3	Severe	Pitting edema of arm, forearm and hand developed one month after therapy concluded. Edema subsided somewhat but persisted in arm.
7	15th	4,020 r	18	2,856 r	17	2-3	Very severe	Patient had minimal edema of arm. Skin anterior to apex of axilla ulcerated about six weeks after therapy and drained serous material for one week, then became secondarily infected and had purulent drainage for several weeks.
8	11th	3,952 r	15	2,784 r	14	2-3	Moderate	Following treatment severe edema of the arm developed. Five weeks after therapy was completed thrombophlebitis of the cephalic vein developed, secondary to unrelated acute cellulitis of one finger. Minimal edema remains in the arm.
9	11th	3,796 r	15	2,448 r	15	2-3	Moderate	One small area of incision had not healed two and one-half months after therapy completed.
BIOPSY ONLY								
10	—	3,780 r	14	4,480 r	52	2	Severe	Ulcer did not granulate in. Simple mastectomy performed with skin graft. Following this multiple metastases to lung appeared.
11	—	3,808 r	17	2,856 r	17	2	Severe	Patient died four and one-half months after completion of therapy from pulmonary metastases complicated by bronchopneumonia and suppurative bronchiectasis.



Figure 2.—Changes in the skin 14 days after completion of treatment.

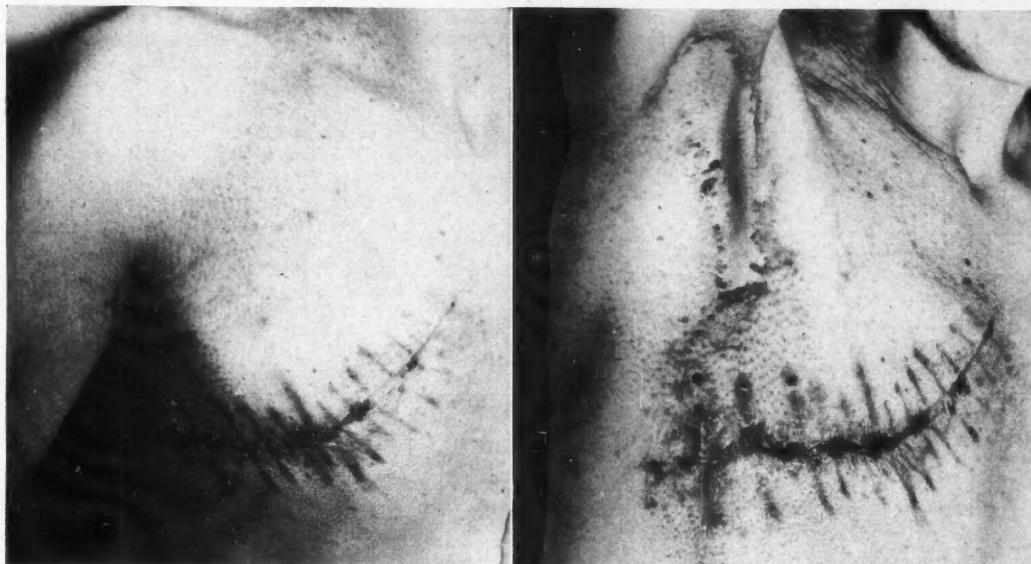


Figure 3.—Changes in the skin 13 weeks after completion of treatment.

recommend heavy radiation after radical operation. No general reactions were noted.

Technical Factors: All treatment was given with a "Maximar 220" therapy machine. The factors were 220 KVP, 15 M.A., $\frac{1}{2}$ mm. Cu and 1 mm. Al added filtration, 50 cm. distance, HVL 1.4 mm. Cu.

Conclusions: From this preliminary study of 12 cases, it is felt that the method of radiation therapy of breast cancer employed at the Royal Infirmary in Edinburgh has definite merit. It is felt that if radical mastectomy is done the radiotherapy should be modified by protraction beyond three weeks in order to avoid severe reactions in tissues already devitalized by the surgical treatment.

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Discussion by L. HENRY GARLAND, M.D., San Francisco

The problem of breast cancer is the problem of cancer outside the breast. When breast cancer is confined to the breast, simple mastectomy will cure—although radical operation is commonly done. Competent surgeons report about 75 per cent relative five-year arrests in clinical Stage I breast cancer. The reason for the 25 per cent failures is presumably that the clinical diagnosis of cancer confined to the breast was erroneous in at least that percentage of cases, and that a majority of women with cancer spread beyond the breast are not cured. When cancer has so spread, the best surgical results (by radical operation) range from 20 per cent to 40 per cent relative five-year arrests; in other words, there are 60 per cent to 80 per cent failures.

The care of women with breast cancer involves the treatment of patients in all stages, operable and inoperable. Haag-

ensen reported absolute five-year arrests in about 33 per cent of cases, Taylor 32 per cent and other workers about 30 per cent. In most of these cases the lesions were "operable," that is, were early or moderately advanced cancers; and in most of them radical operation was done.

On the other hand, McWhirter reported 35 per cent absolute five-year arrest in unselected material by a combination of simple mastectomy and postoperative irradiation. In his hands the over-all results, with the combination of simple operation plus postoperative irradiation, were as good as, if not better than, those achieved by others with radical operation with or without radiotherapy. They were distinctly better than were his own results with radical operation. These were reported in 1948 as follows: with radical operation and post-operative roentgen therapy (790 cases) 32.4 per cent five-year survival; with simple operation and postoperative roentgen therapy (459 cases) 42.9 per cent five-year survival. This represents an improvement in relative results of almost one-third.

Colonel Lodmell has started an investigation which, we hope, will be one of many such studies carried out in order to confirm or refute the results of the Scottish investigator. The colonel has emphasized that the technique he uses is a modification of McWhirter's, but I am sure that it does involve the basic principles set forth by that worker.

It was my privilege to visit McWhirter's department in June 1950. All patients with breast cancer, except the extremely obese and those in a terminal stage, were treated by simple mastectomy and postoperative irradiation. Radiation treatment usually started on the 12th postoperative day; 15 treatment days were planned, with four fields to be treated each day. The fields were marked with ink on the patient's skin and the marks renewed semi-weekly. Suitable cones were aimed at each of the fields, and the space between the cones and the patient filled with bolus bags.

The anterior thoracic wall was treated by tangential fields, each approximately 15x10 cm.; the mesial field was angled about 56 degrees and the lateral 236 degrees. A lead strip, about 8x2 cm., was laid along the upper edge of each of these tangential fields to prevent overlap with supraclavicular fields. The supraclavicular fields included the axilla, and

were irradiated anteriorly and posteriorly, with the patient's arm abducted. The anterior field averaged 25x12.5 cm., and the posterior about 20x12 cm.

The daily dose to each of the tangential fields was 275 r skin, and to the supraclavicular fields 260 r skin. Most of the units were operated at 250 kv.; the filter for the tangential fields was 0.4 mm. tin and for the supraclavicular fields 1.5 mm. tin. Attempt was made to deliver a minimum tumor dose of 3,750 r in three weeks (15 treatment days), the maximum tissue dose being about 4,500 r. The treatment was meticulously given to each patient, and a *complete follow-up* maintained. McWhirter now treats about 300 new patients each year.

The following summarizes the apparent advantages of simple mastectomy plus full postoperative irradiation over radical mastectomy:

1. Decreased chance of cancer dissemination by avoidance of the prolonged handling of tissues necessary in axillary dissection.
2. Decreased operative morbidity—a surgical procedure of less than one hour, as opposed to the five-hour procedure of Haagensen.
3. Almost complete absence of postoperative edema (as

opposed to about 10 per cent incidence after radical operation).

4. Ability of patient to resume occupation or useful work earlier than after the radical procedure.

5. Radiation procedure simpler and less time-consuming than the Swedish preoperative and postoperative technique (the only other radiotherapy technique with results statistically comparable to McWhirter's).

6. Improvement in the five-year absolute survival rate.

It is essential that major postoperative irradiation of the McWhirter type be given with the *greatest care*, and that all investigators report their results in full so that the advantages and disadvantages of the method can be assayed after the lapse of five and ten years. The immediate care and handling of these patients has been well described by the speaker, to whom we would direct just one question: Why did he decide to keep the patient's arm adducted in some of the cases?

(Colonel Lodmell replied that it was thought that, by this departure from McWhirter's technique, a better depth dose might be delivered to the axilla. Another reason was that the position caused less discomfort to the patient so soon after operation.)

The Pros and Cons of Routine Circumcision

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SUMMARY

The origin of the practice of circumcision is an ancient one having a ritual significance in most cases, but the operation is done primarily for hygienic purposes amongst English-speaking people.

Critical evaluation of the indication for circumcision suggests that the hygienic principles are probably overrated. If it were understood that the anatomy of the prepuce and glans has a morphological development which in most cases removes the possibility of phimosis after the third year, less emphasis would be placed on the necessity for the operation.

On the other hand, the feeling exists that boys who will require circumcision because of phimosis, balanitis, etc., should not be subjected to the operation at the age when psychological trauma can result. Convention and conformity demand the continuation of the procedure in many areas. The decision to circumcise remains a matter of individual preference as prescribed in the doctor-patient relationship.

BECAUSE of the tendency to circumcise newborn male infants as a routine procedure, it seems advisable to contemplate the various indications and contraindications for the operation and to attempt a logical appraisal of the need for it. Extreme voices in opposition speak of circumcision as a "process of mutilation of the penis," while complacent proponents say, "Let's get it over with." Is there a correct answer?

Proper hygiene seems to be the prominent incentive for the rather general prescription of circumcision in the western nations and among English-speaking people. However, it might be well to review historical data on the origin of circumcision.

Ritualistic circumcision extends back to the stone age, from all that is known.^{5, 6} In the primitives, circumcision was done at puberty, a practice still followed by the aborigines in some parts of the world. Nunberg,⁷ Daly,³ and others indicated that circumcision represented symbolic castration, and that the underlying motives were the repression of incest and reinforcement of the masculinity of the initiated boy. It seems quite improbable that hygiene is a motive among primitive peoples, since numerous tribes who have not the foggiest idea of cleanliness, hygiene, or prophylaxis practice the operation. Its use as a tribal mark³ is credible, since circum-

cision amongst the Egyptians, Hebrews, Mohammedans, and many primitive peoples heightened the consciousness of tribal pride and unity, as is evidenced by the contempt of circumcised peoples for the uncircumcised. That circumcision originated as a test of endurance is untenable, for stolidity is a requisite in many other primitive rites. Those who advance the theory that the operation originated as a preparation for sexual life, support it with the postulation that the widespread practice of circumcision at puberty was an attempt to discourage masturbation, or to promote fertility. This again is refuted in the knowledge that primitive peoples know nothing of the cause of pregnancy; for them the condition is merely a visitation of a departed spirit.

A great religious significance^{5, 11} was placed upon circumcision by the ancient Hebrews when the covenant between Jehovah and Abraham was solemnized by the cutting of the foreskin. After the settlement of the Israelites in Palestine, this pubertal rite was transferred to the eighth day after birth. It has been debated whether the Hebrews actually had in mind prophylactic measures as well as a religious rite.

From a profound and ancient background, circumcision has evolved into an everyday and commonplace operation, with a new and possibly superficial significance placed upon it. What are the material benefits derived from routine circumcision of the newborn male infant?

McMann⁶ in this country and Gairdner⁴ in England attempted to focus attention upon the need for a better understanding of the anatomy and development of the penis and prepuce of the infant and child. By this means, some of the erroneous ideas which are prevalent among medical and lay people may be corrected, and a new light placed on the question of circumcision as a routine procedure.

The prepuce is still in the course of development at birth, and in only one case in 20 is it fully retractable at this time. Accordingly, rather than ascribe this to adhesions, it is proper to identify the condition as an incomplete separation of the prepuce and glans.⁴ In Gairdner's survey of about 300 boys ranging up to three years of age, it was noted that the prepuce was non-retractile in 80 per cent at six months and 56 per cent at one year. At two years of age, only 20 per cent of the subjects had a non-retractile prepuce; and at three years, only 10 per cent. Although many physicians use the term phimosis in describing non-retractility, implying pathological constriction of the prepuce, actually the condition is caused by the persistence of strands of tissue between the prepuce and the glans. In most instances the foreskin, although tight, may be retracted after a probe has been passed gently around the space between the prepuce and the glans to disengage the strands. As probing may cause some bleeding and subsequent discomfort, the procedure is not recommended as a routine measure in the very

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young. Better not to probe or retract until normal development makes for the optimum time.

How long ought one wait? Because inspissated smegma is certain to become an irritative accumulation, after a child is about three years of age steps should be taken to make the foreskin retractable and so that glans and prepuce can be kept clean. This usually can be accomplished by careful probing and retraction; but if the procedure is unsuccessful, eventual circumcision is to be recommended.⁴

Too often, mothers are given the misguided instruction to retract and stretch the infant's prepuce forcibly and regularly. The result may be a traumatized and irritable baby and a frustrated, frightened mother. Fissures at the orifice of the prepuce may become infected or bleed, causing the baby to cry with micturition; or overzealous retraction may cause paraphimosis, necessitating a harrowing remedial treatment. All this because of the ignorance of the anatomy of the prepuce in infancy. Too often when such complications develop, prompt circumcision is recommended, the parents are blamed for not heeding previous advice and they are remorseful that they have not spared themselves and their child this misery.

Other pathological conditions of the prepuce are cited as positive indications for circumcision in order to cure existing disease or to obviate future complications. Inflammation receives considerable attention because it is common. True, cellulitis of the prepuce can occur, but it can be effectively treated with antibiotics or with chemotherapy. Inflammation associated with ammonia dermatitis of the diaper area, a rather common occurrence, may cause thickening and edema of the foreskin that is often mislabeled "redundant prepuce," although simply rinsing the diapers with a mild non-toxic antiseptic such as Diaparen® usually results in effective relief of the condition.⁴ A measure of the protective function of the prepuce is given by the fact that ulcers of the meatus rarely occur in persons who are not circumcised.

Enuresis, habit spasms, masturbation, and even convulsions have been attributed to phimosis—and upon this have been based arguments for circumcision. In intelligent scrutiny of the situation, however, mere non-retractability of the prepuce rarely can be judged the cause for such phenomena.

Circumcision entails risks of hemorrhage and sepsis—certainly not inconsequential considerations. If a general anesthetic is employed, the possibility that the patient may die in anesthesia must be considered. In England about 16 children under five years of age die each year of causes attributable to those hazards of circumcision.⁴

Far too frequently circumcision is done with little regard for true anatomic relations—too much or too little of the prepuce may be removed, or it may be ragged or unsightly. Often, repair for cosmetic reasons alone is indicated, reflecting little credit upon the medical profession. Circumcision is often relegated to an intern, or to a surgeon who has no particular skill in the technique, without adequate in-

struction or supervision, whereas it should merit the attentions of a qualified surgeon. A standardized technique cognizant of hemorrhage, edema, sepsis, and imperfect result should be emphasized.^{1, 2, 9}

The casual way in which consent for circumcision is being given by parents also must be mentioned. On entering the birth room, the harassed mother is offered a paper to sign giving consent for circumcision, and she promptly signs between labor pains. The anxious father is halted while pacing up and down and is confronted with the same paper. It may be surmised that the vast majority of parents really have not had the true implications of circumcision discussed with them and that they give their assent because "it must be the thing to do or our doctor would have told us about it," or because "the girls in the neighborhood or the club said that it's best." Informal questioning of parents with regard to the reason they had for consenting to circumcision of their boy has brought out such answers as, "It's the thing to do, isn't it?" or "We believe in it." In light of such replies, it may be wondered if the profession has diligently given an unprejudiced and qualified evaluation of this question to prospective parents.

Opponents of routine circumcision say that the prepuce of the infant should be left in its natural state. In most instances it will become retractable when complete separation occurs, usually when the infant is between the ages of one and three years. As soon as it is retractable, the parts may be washed with soap and water during the regular bath period. Older children should be taught to keep the foreskin clean just as they are taught to wash their ears.

On the other hand, there is much to be said for routine circumcision. The very fact that there is so much uncertainty and fear in the minds of mothers concerning the cleanliness of the prepuce makes it a very acceptable procedure to many experienced and qualified pediatricians. How else should a mother be expected to react to anything pertaining to cleanliness and germs, after having been conditioned so rigidly in such health matters as formula making, the wearing of masks, the use of soap and water, and necessity for immunizations? Most physicians probably have encountered the parent, properly educated or not, who after a few sad experiences with even such readily reversible conditions as balanitis and posthitis, has regretted that circumcision was not done early.

Army medical officers, particularly of field units, can readily recall the discomfort of many of the men who were not circumcised, after extensive maneuvers or combat periods. Ordinarily fastidious soldiers, deprived of elementary requirements for cleanliness and hygiene under field conditions, had all degrees of balanitis. Consent to circumcision was usually obtained with very little difficulty, as urologists in the armed services can attest.

Cancer of the penis is absolutely prevented by circumcision in infancy. This disease causes about 250 deaths annually in this country, yet not a single case has ever been recorded in a Jew ritually circumcised in infancy.¹⁰ In a study of the incidence of

penile cancer in India,¹⁰ it was noted that the disease was almost non-existent in Mohammedans, who circumcise their males, but that it accounted for 15 per cent of all cancers in man in that country and occurred almost exclusively in Hindus, who do not circumcise their male children. Although the disease is rare in Mohammedans, that it occurs at all is significant in that their circumcision ritual is carried out when the child is between the ages of four and twelve years. The implication is that irritations produced early in life by smegma contained beneath a non-retractable prepuce predispose to cancer even though these secretions are eventually removed by circumcision.¹⁰

Brief mention can be made of the postulate that cancer of the cervix may be related to this factor. There is a significantly low incidence of the disease in Jewish women although women of that race are especially vulnerable to cancer. The elimination of a possible cancer-forming substance of the preputial space by circumcision is accordingly suggested.¹⁰

The community practice of circumcision often makes it mandatory that there be conformity among boys developing and growing in the same culture. This, of course, varies in different parts of the United States as well as elsewhere. Recently a forceful example was given to the author: The two boys of a family refused to participate in a Y.M.C.A. swimming program until they too were circumcised, in order to avoid being conspicuous. This would at first appear to be a superficial argument for routine circumcision, but those who are aware of the many emotional and psychological problems that face children do not dismiss it lightly. The period of genital anxiety and the awareness of sexuality in children is well recognized by pediatricians as an integral part of the emotional development of the child.⁸

An intensification of genital anxiety can be expected in any child who must submit to circumcision in this period of awareness. The pain and discomfort of the operation and of the convalescent period cannot easily be forgotten and can be the source of far-reaching psychoneurotic complications in later life.^{7, 8} One compassionate father, who was circumcised at the age of six, emphatically explained to the author his consent for the circumcision of his son at birth. His wish was that his son need never experience the ordeal he had endured. Spock⁸ stated that "from the emotional point of view circumcision should be performed either before the age of six months or not until adulthood." Those who favor routine circumcision at birth are cognizant of these factors in accepting the procedure as an advantage to the male child.

Attention is called to the circumcision routine used at the Huntington Memorial Hospital in Pasadena in the last five years. The obstetrician circumcises the infant while still in the birth room during the observation period. The method used is at the discretion of the individual physician, whether by clamp or amputation and suture. This is a physiologic period in respect to prothrombin levels; early operation eliminates the objection of imposing un-

due unhappiness upon the baby; and it is done under the strictest aseptic technique. By using the facilities of the birth room already set-up, a saving is made to the hospital in nursing hours and equipment. In 1949 and 1950 a total of 1,878 male babies were born alive at the Huntington Hospital. Of these, 1,746 or 92.97 per cent, were circumcised immediately following delivery. An additional 98, or 5.21 per cent, were circumcised prior to discharge from the hospital, immediate operation having been deferred because of prematurity, because delivery was by cesarean section, or because of fetal distress at the time of birth. Minor oozing of the wound occurred in approximately 15 per cent of the cases, primarily on the day of birth, and in all but three cases was promptly controlled by the use of coagulant agents such as Oxycel® and Gelfoam.® In three exceptional cases mentioned, repair was necessary but there was no need for transfusion. Neither infection of the wound nor sepsis was noted in any case. Two facts stand out: First, the infant is under close and skilled observation in the nursery for five days, and, second, it leaves with its mother with a healed wound.

An impartial scrutiny of the pros and cons of routine circumcision discloses that there is no incontrovertible medical reason for circumcision, except for the prevention of penile cancer, a rare disease. There exists a need for better orientation to the problem by both medical and lay people—a question of education. Convention and conformity demand the continuation of the procedure in many areas. The decision to circumcise remains a matter of individual preference as prescribed in the physician-patient relationship. The decision should be made before the birth of the child, and if circumcision is decided upon, it should be done early, under optimum conditions, rather than expose the male child to disagreeable and unnecessary psychological trauma in childhood or adolescence.

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Colles' Fracture

A Method of Maintaining Reduction

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SUMMARY

A major difficulty in the treatment of Colles' fracture is maintenance of reduction. Wedging of the cast, a procedure used in dealing with other orthopedic conditions, was adapted to the treatment of Colles' fracture and was employed in 23 cases. In most of them the method was effective in preventing displacement.

A SATISFACTORY result of treatment of Colles' fracture depends on three factors: (1) There must be adequate reduction of the fracture; (2) the reduction must be maintained until solid bony union takes place; (3) the joints of the hand and of the shoulder must be freely active during the entire course of treatment.

Of the three requirements, probably the most difficult to achieve is maintenance of reduction until union is solid. It is disconcerting to find, after a perfect initial reduction and application of a seemingly adequate plaster cast, that a deformity of the wrist has, nevertheless, occurred during the period of healing within the cast.

The importance of maintenance of reduction has been recognized in various attempts to circumvent the hazard of displacement: Skeletal traction and skin traction have been incorporated into the application of the plaster. Repeated tightening of the primary anterior and posterior splint has been employed. The purpose of this presentation is to describe a method in which the principle of wedging is applied to the cast for Colles' fracture.

METHOD

The fracture is reduced as soon as possible after the injury by means of manual traction and countertraction and by manual disimpaction of the fracture. A strip of two thicknesses of sheet wadding 1 inch wide is wound around the site of the fracture. A posterior splint of about four layers of wet plaster of paris is placed on the dorsum of the forearm from the metacarpophalangeal joints to the elbow. This splint is fixed to the arm by a flannel bandage, cut at frequent intervals to prevent wrinkling. The wrist is held in the position of correction, ulnar deviation and volar flexion, until the plaster hardens. A roll of plaster of paris is applied to the flannel-covered forearm splint. The forearm is thus well immobilized. The elbow joint then is immobilized by additional plaster of paris bandages. The skin of the

upper arm and the elbow may be protected from the plaster by a layer of sheet wadding, since this part of the cast need not fit tightly. After splinting and bandaging is completed, lateral and anteroposterior roentgenograms of the wrist are made. The patient is instructed in the importance of early motion of the fingers and of the shoulder joint, and is warned to report any inordinate swelling or pain.

The foregoing constitutes little deviation from standard procedure. Now the variation: Two or three days after the reduction, the cast is cut circularly (preferably with a Stryker cast cutter) at the level of the fracture. Only a small bridge of plaster is left on the volar and ulnar borders of the wrist. Small wedges of wood (pieces of tongue depressors) are inserted on the radial side of the aperture in the cast. The aperture and wedges are fixed by several layers of adhesive plaster. Anteroposterior and lateral roentgenograms are made of the wrist. If position is satisfactory, the adhesive plaster is covered with a few turns of plaster of paris.

The initial cast is left in place for four or five weeks and a short posterior skin-tight plaster splint is employed for an additional three or four weeks.

RESULTS IN TWENTY-THREE PATIENTS

This method was employed in a consecutive series of 23 patients with displaced Colles' fracture. Undisplaced fractures were not treated by this method. In each there was a comminuted fracture of the distal end of the radius with mild, moderate, or severe displacement. The ulnar styloid process was fractured in all cases. As all the patients were treated in private practice, it was possible to keep them under observation for the appearance of pressure necrosis which it was thought might occur because of the tight cast. Such a complication did not occur.

A specific routine of treatment was not followed. The only common denominators were: First, the long cast extending above the elbow; second, wedging of the primary cast within the first few days after initial treatment; third, a short, skin-tight, posterior splint of plaster extending to the elbow following removal of the primary cast. The two casts were left in place for variable lengths of time. Immobilization was discontinued as soon as bony union was thought to be present as judged by roentgenologic and clinical evidence. Tables 1 and 2 summarize the schedules of treatment and the end results.

There were no untoward complications as a result of the procedure. In two or three cases the casts had to be split because of edema of the fingers. The patients did complain of more pain after the cast was wedged than they had before the wedging. One

patient had a moderate clinically apparent deformity as a result of the fracture but this took place after the plaster cast was removed; the cast had been removed too early. In one case there was some displacement of the fracture after wedging.

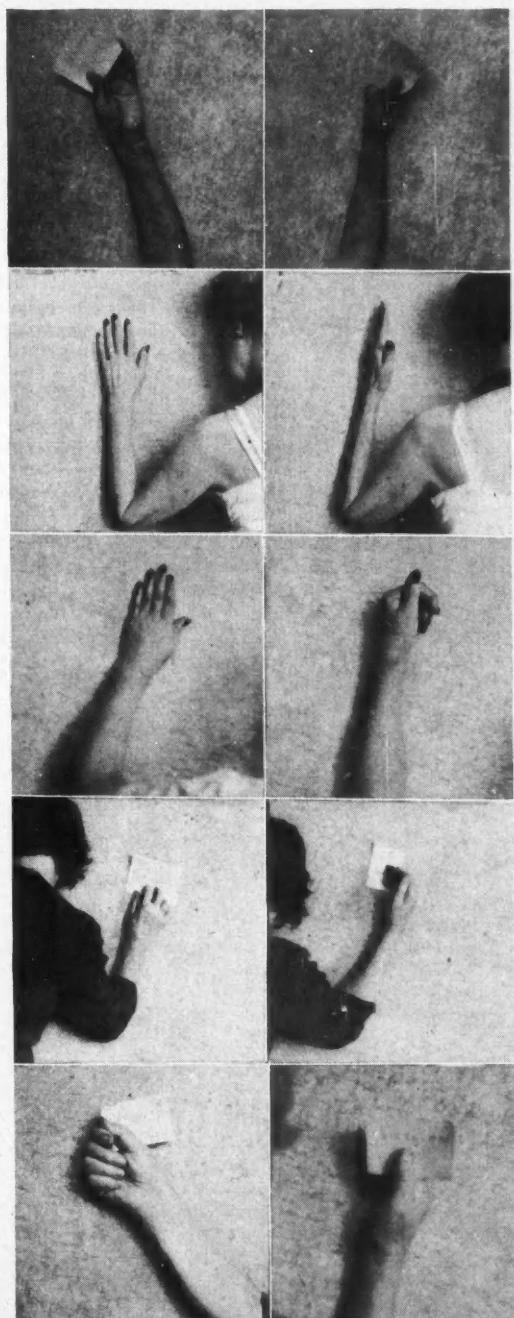


Figure 1. Each horizontal pair of photographs represents two views of the result obtained in a single patient.

ANESTHESIA

Five of the patients were given 8.0 mg. or 10.0 mg. of morphine intravenously. Of the 23 patients, 21 were given procaine* intravenously. These patients first were given 1 ounce of whiskey orally to counteract the effect of the procaine to be administered. Twenty cc. of a 0.5 per cent solution of procaine was instilled intravenously, slowly over a period of three minutes. Neither local nor inhalation anesthesia was employed in this series. Local infiltration has the theoretical hazard of increasing tissue edema. General anesthesia would have increased the expense of treatment, although it would be indicated in cases in which analgesia is not produced by the intravenous use of procaine. In this series, however, procaine given intravenously produced satisfactory analgesia in all cases in which it was used. Anesthesia or analgesia was not required for the wedging procedure although it caused moderate pain.

DISCUSSION

The use of wedging or rimming of plaster casts for the correction of recent fracture deformities is not, of course, new. Kite has used wedged casts for many years to correct congenital equinovarus. Previous reports on the use of the wedged cast for the

*For routine use, general anesthesia is safer than anesthesia by procaine given intravenously.

TABLE 1.—*Clinical Data and Schedule of Treatment in 23 Cases of Colles' Fracture*

Case	Age	Months of Follow-Up	Degree Displacement (X-Ray)		Day Cast Wedged	Time in Cast	
			Anterior	Posterior		First Cast Days	Second Cast Days
1	52	10	65	50	2nd	12	13
2	37	3	105	90	2nd	30	21
3	26	5	110	75	3rd	30	21
4	78	17	115	70	1st	14	7
5	62	18	105	85	6th	30	30
6	53	19	115	75	2nd	30	21
7	55	25	110	85	3rd	21	14
8	63	1	105	75	1st	3	9
9	52	25	105	75	1st	21	4
10	40	16	85	50	1st	14	21
11	66	9	105	75	3rd	21	11
12	50	10	105	80	4th	21	12
13	75	32	110	75	3rd	17	7
14	64	16	95	70	3rd	21	5
15	46	24	105	70	2nd	14	11
16	37	20	90	65	1st	21	14
17	51	9	105	65	1st	9	14
18	56	20	95	75	1st	33	14
19	54	12	80	65	1st	30	14
20	62	11	70	65	6th	35	14
21	65	3	90	65	5th	30	10
22	55	9	80	65	3rd	30	21
23	65	7	90	80	6th	30	21

In all but three cases fracture was reduced at office with intravenous administration of procaine. In Cases 6 and 19 reduction was done at hospital with pentothal given intravenously. In Case 22 reduction was done at hospital with procaine given intravenously.

TABLE 2.—*End Results in 23 Cases of Colles' Fracture*

Case	Degree of Anatomic Reduction (Roentgenologic)		Result		
	Antero-posterior	Lateral	Wrist Stiffness	Hand	Pain
1	115	85	None	None	None
2	110	90	None	None	None
3	110	80	None	None	None
4	115	90	None	None	None
5	110	90	None	None	None
6	110	90	None	None	None
7	115	90	None	None	Slight, Good
8	110	90	None	None	Excellent
9	110	90	None	None	Excellent
10	110	70	Slight (20% loss of supination)	None	Slight, Good occasionally
			Patient well satisfied		
11	110	90	None	None	None
12	110	90	None	None	None
13	105	75	None	None	None
			Patient well satisfied		Good
14	110	85	None	None	Slight
15*	110	80	None	None	Slight, Good occasionally
16	105	90	None	None	None
17	105	75	None	None	Slight
			Cast removed too soon		Good
18†	115	90	None	None	None
19	110	90	None	None	None
20	110	75	Slight	None	Slight
21	110	90	None	Slight	Slight
22	110	80	None	None	None
23	105	90	None	Slight	Slight

*Delayed union as cast was removed too soon. Remanipulated eleven weeks after the injury because of increasing deformity. Under pentothal anesthesia fracture was found to be not solidly united. Second manipulation, cast wedged on second day. New cast applied after one month. Short cast off after three weeks.

†Cast and reduction by a physician in another city.

prevention of deformity in Colles' fracture, however, have not been found in the literature.

The wedging procedure has several advantages. It may possibly overcome small amounts of deformity not reduced primarily. It prevents recurrence of the deformity in the cast in most cases. It obviates the necessity for skeletal traction in most fractures of the distal end of the radius. The wedged cast cannot be depended on to prevent deformity in all cases, however. In extremely comminuted and disorganized fractures it probably will continue to be necessary to use skeletal traction by means of a wire through one or more metacarpal bones or to accept deformity of the wrist and perform a reconstructive procedure when some solidification has occurred.

Plaster immobilization must be maintained an adequate length of time. It is easier to relieve stiffness of the wrist than to correct a bony deformity. Active motion of the fingers and of the shoulder must be maintained throughout the period of plaster immobilization.

It should be emphasized that this method of treating Colles' fracture necessitates experience in non-padded techniques, frequent roentgenograms and frequent observation of the patient's hand and arm.

Perfect anatomic reduction is not claimed for this method. However, it can be used with benefit in selected cases. And although there may be imperfections in reduction as observed roentgenographically, the method assures an acceptable result from the standpoint of the patient. Both the cosmetic results and the functional results, the latter measured in terms of lack of pain and of stiffness, were satisfactory in the series here reported.

2007 Wilshire Boulevard.

CASE REPORTS

- ◆ Eosinophilic Pneumonia (Loeffler's Syndrome)
- ◆ Erythema Nodosum
- ◆ Waterhouse-Friderickson Syndrome

Eosinophilic Pneumonia (Loeffler's Syndrome)

Report of a Case Treated with ACTH

E. R. RIGGALL, M.D., Prairie Grove, Ark., and
J. J. McGINNIS, M.D., San Francisco

PROMPT, excellent and permanent results were obtained by the use of adrenocorticotropic hormone (ACTH) in a case of eosinophilic pneumonia (Loeffler's syndrome).

A 38-year-old white male was admitted to the hospital Nov. 14, 1950, with a history of easy fatigability beginning 18 days prior to admission and of the sudden onset of high fever and diarrhea 11 days prior to admission. A temperature chart was kept (see Chart 1) for the ten days preceding admission. The diarrhea consisted of explosive discharges of watery, colorless fecal material four or five times daily, without cramps or bleeding. It subsided three days after onset. The appetite had been good throughout the illness until two days before admission, when nausea developed, possibly in relation to aureomycin therapy. There was history of two to three chills per day lasting three to four minutes for the preceding ten days, and of fairly frequent morning headaches which were relieved by acetylsalicylic acid. Moderate dyspnea on exertion had been present for several days prior to admission to hospital, and mild, nonproductive cough for one day.

The patient had been treated by a series of physicians and had received penicillin orally and parenterally, aureomycin, and other compounds, the nature of which could not be determined although possibly a sulfa drug was among them. There was no beneficial response to treatment.

The patient gave a history of almost monthly exacerbations of chronic asthma (he was sensitive to house dust) which had begun at the age of three and a half years. Nasal polyps had been removed when the patient was 14 years of age. No further positive relevant information was obtained.

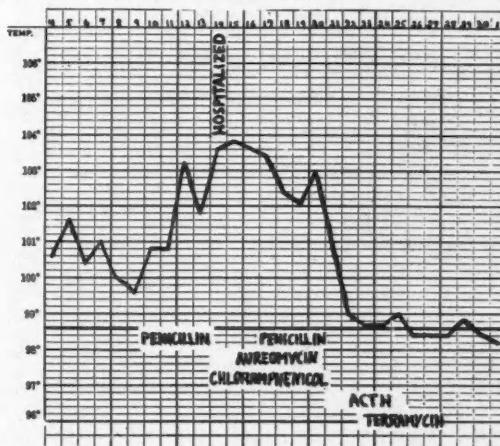
Upon examination the patient was noted to be asthenic. He became dyspneic on minimal exertion, but breathed easily at rest. The skin was hot and dry. The temperature was 100.6° F., the pulse rate 120 per minute, and the respiration rate 20 per minute. A healing area of herpes simplex was noted on the lower lip.

Decreased resonance to percussion, increased tactile fremitus, and decreased vocal fremitus were noted in the postero-lateral inferior aspect of the right hemithorax. Subcrepitant inspiratory rales and an expiratory grunt were noted in the same area. Expansion was bilaterally equal.

The blood pressure was 126 mm. of mercury systolic and 72 mm. diastolic. A blowing, grade I apical systolic murmur was noted in auscultation of the heart.

From the Southern Pacific General Hospital, San Francisco (McGinnis).

Chart 1.—Precipitous drop in temperature after ACTH in 25 mg. doses every six hours.



Results of urinalysis were within normal limits, and of a serologic test for syphilis negative. The urea nitrogen, sugar and cholesterol contents of the blood were normal. Results of blood cultures and agglutination and complement fixation tests were negative for *E. typhi*, *S. paratyphi* A and B, *brucella abortus*, *Proteus OX19*, cold agglutinins, Q fever, psittacosis, lymphogranuloma venereum, influenza stains A, A', and B, and heterophil antibodies. In examination of five stool specimens obtained on consecutive days, no ova, cysts or parasites were observed. Smears of three specimens of sputum were negative for acid-fast bacilli, and results of culture and of guinea-pig inoculation also were negative. In examination of Gram-stained specimens of sputum taken at the time of admission, the following were noted in decreasing predominance: (1) Gram-negative diplococci, (2) Gram-negative small rods, (3) fusiform bacilli, and (4) Gram-positive cocci in groups. In a Hansel-stained specimen of sputum Nov. 22, 14 per cent of the cells were eosinophils and 86 per cent neutrophils.

Following are the reports on examination of the blood on four occasions:

	Nov. 15	Nov. 20	Nov. 22	Nov. 27
Hemoglobin (gm. per 100 cc.)	12.0	11.0		
Erythrocytes per cu. mm. (millions)	4.4	3.8		
Leukocytes per cu. mm.	23,200	25,700	20,700	15,400
Neutrophils, per cent.....	75	74	50	55
Lymphocytes, per cent.....	8	3	25	12
Eosinophils, per cent.....	12	20	23	19
Monocytes, per cent.....		2	2	14
Erythrocyte sedimentation rate (Wintrobe, corrected)		31		33

Direct counts of eosinophils per cu. mm. were as follows: Nov. 21, 4,800; Nov. 22, 1,666; Nov. 29, 1,320. Four hours after the injection of 3 minims of 1:1000 epinephrine solution on Nov. 21 the eosinophil count fell only from 4,800 to 3,770.

In x-ray films of the chest made on admission (Figure 1) an infiltrative process in the superior portion of the right lower lobe was noted.

The diagnosis on admission was bronchopneumonia, and antibiotic therapy was started. The patient had two chills on the nights of Nov. 15 and Nov. 17 and the clinical condition remained unchanged despite the addition of other antibiotics in the usual dosage to the regimen (Chart 1). On Nov. 21 a tentative diagnosis of eosinophilic pneumonia was made and ACTH was given intramuscularly as follows: 50 mg. every six hours for four doses, 25 mg. every six hours for two doses, 12.5 mg. every six hours for four doses.

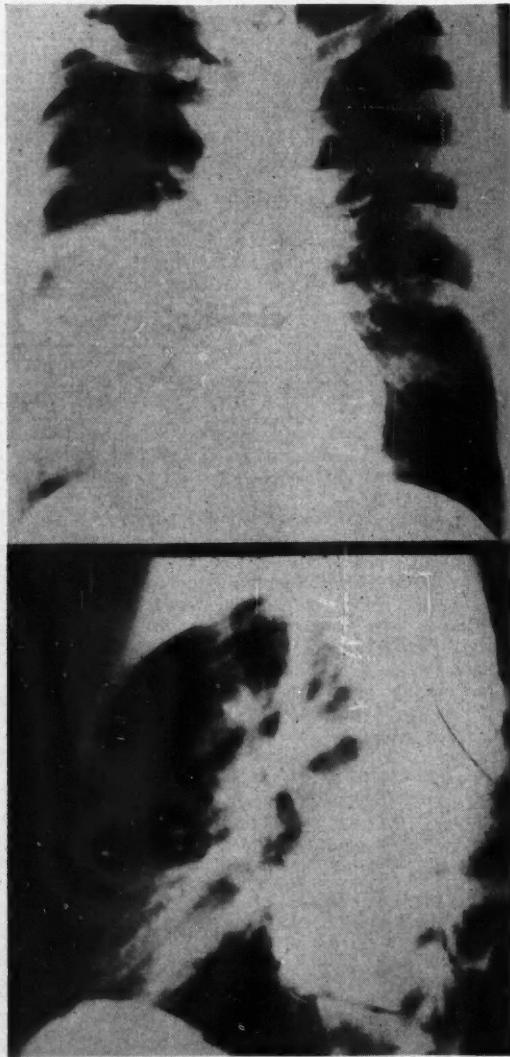


Figure 1.—X-ray films of chest, posterior-anterior and lateral, November 15, 1950. Consolidation in posterior portion of right lung field involving the superior portion of the lower lobe.

Within 24 hours the patient was afebrile and felt quite well. The clinical evidences of pulmonary congestion cleared and were undetectable by Nov. 27 when x-ray films (Figure 2) were reported as indicative of definite improvement. ACTH was discontinued on Nov. 26 and the evidences of the disease remained in abatement. Glycosuria did not occur and no personality changes were noted during or after the use of ACTH. The patient was discharged from the hospital Dec. 4, 1950.

He was reexamined April 16, 1951. In x-ray films of the chest, hilar and basal scarring with moderate emphysematous changes were noted (Figure 3) but there were no residua of the pneumonitis. The hemoglobin content of the blood was 13.5 gm. per 100 cc. Erythrocytes numbered 4,430,000 per cu. mm. and leukocytes 6,100—68 per cent neutrophils (1 stab), 29 per cent lymphocytes, 1 per cent monocytes, 1 per cent eosinophils, and 1 per cent baso-

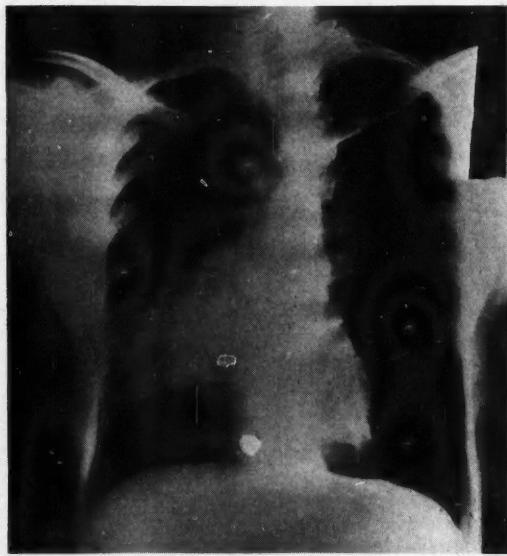


Figure 2.—In x-ray film made November 27, 1950, clearing of the consolidation at the right base was noted.

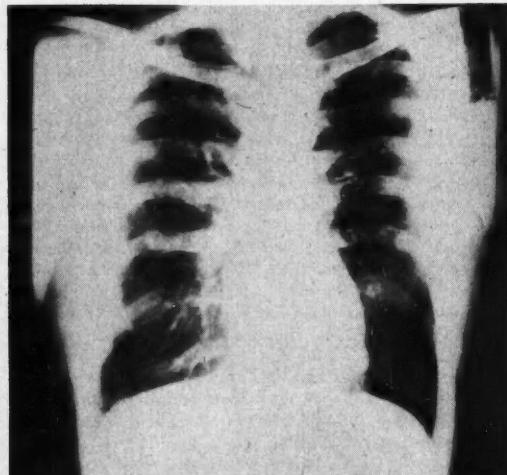


Figure 3.—Roentgenogram made April 16, 1951. The right lung field was completely cleared.

phils. Eosinophils numbered 341 per cu. mm. and the erythrocyte sedimentation rate (Wintrobe, corrected) was 2. The patient stated that his health had been excellent since discharge.

DISCUSSION

The disorder bearing the name Loeffler's syndrome was first described by Loeffler⁸ in 1932 as short-lived pulmonary infiltration (as observed in x-ray films of patients with asthma) associated with eosinophilia. In 1936 Loeffler⁹ published a report of 51 cases wherein emphasis was again laid on the benign, transient nature of the disease and on the relation to asthma. Since that time, numerous reports of pulmonary infiltration associated with eosinophilia (frequently more prolonged and less benign than in the cases originally reported by Loeffler) have appeared in the literature and many etiologic factors were inculpated, including Entameba histolytica,⁶ cutaneous helminthiasis¹⁸ (usually due to Ancylostoma brasiliense), mites of Tyroglyphus or Tarsonemus,^{13, 16} Trichinella spiralis,¹² Ascaris lumbricoides,¹⁰ Clonorchis sinensis,⁷ and the ubiquitous Brucella.²

It is probable that, whatever the immediate causative agent, the common denominator is the preexistence of asthma, and that the pathogenesis of the disease is severe asthma with atelectasis and superimposed infection producing, to a degree dependent upon the amount of atelectasis and the character of the infection, pneumonic changes and the eosinophilia common to an attack of asthma. Of particular interest in this regard was the report of Jahiel and Jahiel¹¹ on the experimental production of eosinophilic pneumonia by the injection of antigen into rabbits previously sensitized by inhalants. These investigators noted that the infection depended upon the presence of atelectasis and that the atelectasis, in turn, depended upon the presence of asthma. Hence antibiotic therapy, without first removing, suppressing, or combating the allergic-asthma factors, has little value in severe cases; in mild cases, recovery from the asthma, the atelectasis and the infection will occur spontaneously and in that order.

The nonmalignant nature of the disease has been such that reports on cytological changes have been few. Bayley, Lindberg and Bagenstoss¹ reported a case in which patchy areas of eosinophilic edema were observed. In microscopic examination many eosinophils were noted in edematous fluid; there was evidence of organization with fibrous and giant cells; rather unusual granulomatous lesions were observed; and evidence of necrotizing arteritis and phlebitis was noted. (The latter observation is interesting in connection with a case, recently observed by one of the authors, in which symptoms typical of Loeffler's syndrome were relieved by ACTH therapy but periarthritis nodosa ensued.) Smith¹⁸ reported a case in which the symptoms were those of eosinophilic pneumonia and, at necropsy, changes typical of periarthritis nodosa were observed. Harkavy⁵ reported observing pathologic changes like those which occur in periarthritis nodosa, in autopsy of patients with bronchial asthma.

"Tropical eosinophilia,"^{12, 17} a disease which is characterized by bouts of asthma, pneumonic infiltration of the lungs, loss of weight and anorexia, and which is associated with pronounced leukocytosis and eosinophilia, has been fairly definitely ascribed to the inhalation of various mites,^{13, 16, 17} and it is probable that allergic response to the mites and their catabolites occurs.

Eosinophilic pneumonia is more common in children than in adults because the pulmonary structure of children makes them more liable to atelectasis. Because the main stem bronchus is straighter on the right side than on the left, the disease involves the right lung more often than the left, as might be expected in view of the allergic factor in the pathogenesis.

Excellent therapeutic responses have been reported with ACTH. Rose¹¹ obtained a dramatic response with doses of 35 mg. every 90 minutes for four doses.

Weingarten¹⁷ reported rapid abatement of tropical eosinophilia when arsenical compounds were given orally, and Fond and Ravenna,⁴ in reporting two of the five known cases of the disease in this country, noted very good response to intravenous administration of arsenical compounds.

SUMMARY

A case of the relatively unusual disease of eosinophilic pneumonia (Loeffler's syndrome) is reported. Treatment and etiologic and pathologic factors are briefly discussed.

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Erythema Nodosum

Treatment with Cortisone by Mouth

ROBERT W. ALBRIGHT, M.D., and MARK J. KUFFEL, M.D.,
Long Beach

CORTISONE has been used in a variety of diseases considered to be manifestations of hypersensitivity in some manner. Such diverse diseases as acute rheumatic fever, acute lupus erythematosus, periarthritis nodosa, dermatomyositis, status asthmaticus, exfoliative and atopic dermatitis, gout, serum sickness, Loeffler's syndrome, urticaria, rheumatoid arthritis, and allergic rhinitis have been treated with cortisone with variable but often excellent immediate results.^{1, 2, 5-7, 9-11}

Erythema nodosum is now considered a hypersensitivity disease with a variety of infectious and chemical agents and local trauma acting as the exciting etiological factor in certain predisposed persons. It can be disabling, uncomfortable disease lasting up to five weeks, and in 10 per cent of cases may enter a chronic smoldering phase extending for three to nine months with further disability.² For these practical reasons and because of the theoretical possibility that cortisone would be of benefit, the hormone was used in the treatment of a patient with erythema nodosum who was observed by the authors in consultation. At the time there were no reports in the literature on the use of cortisone in this disease, although recently a report did appear.²

REPORT OF A CASE

A 60-year-old white housewife was admitted to the hospital May 27, 1951, with chief complaints of pain in the legs and fever.

The illness began one week prior to admission and was manifested by chills, fever, pain and swelling of increasing severity in the knee and ankle joints, and the presence of multiple tender, reddish nodules over the lower legs, thighs and forearms. There was a pronounced feeling of lassitude, malaise, weakness and anorexia. The patient had also noted definite irregularity of the pulse since the onset of symptoms.

One month before the onset of the current symptoms the patient had had severe infection of the upper respiratory tract.

There was history of rheumatic fever at age 30 without apparent cardiac damage. The patient had not had tuberculosis and had not been exposed to toxic drugs or chemicals. As she had lived in the environs of Long Beach for many years, exposure to coccidioides seemed unlikely.

On physical examination, obesity, moderately severe pain, and marked lassitude were noted. No abnormality was noted in examination of the head and neck. The chest was clear and respirations were 20 per minute. The heart was not enlarged. The pulse rate was 80 per minute, with frequent extrasystoles. There was a soft blowing systolic murmur at the apex, not transmitted. The liver and spleen were not palpable or tender; there were no abdominal masses. On the tibial aspect of both legs were multiple, dull reddish, raised nodules ranging from 1 to 4 cm. in diameter. They were painful and tender to palpation. A few similar lesions were noted on the lateral aspect of the thighs and radial surface of the forearms. The knee and ankle joints were swollen and tender.

Erythrocytes in the blood numbered 4,300,000 per cu. mm. and the hemoglobin content was 13.3 gm. per 100 cc. Leukocytes numbered 8,600 with 62 per cent polymorphonuclear cells and 38 per cent lymphocytes. Results of a serologic test for syphilis were negative. Bigeminal rhythm was noted in an electrocardiogram. There was no growth of pathogenic

organisms on cultures of the blood over a two-week period. Results of urinalysis were within normal limits.

On admission the patient was given 50,000 units of penicillin every three hours for a period of five days. During that period the temperature varied from 98.6° F. to 102.6° F. and the general symptoms became gradually worse. On the morning of the sixth day cortisone was given intramuscularly, 100 mg. twice daily. Within 18 hours the skin lesions began definite regression, the joints were less tender and the temperature was normal. The feeling of lassitude lessened and the appetite returned. Cortisone then was given orally, 50 mg. four times a day, and improvement continued. The patient was discharged after ten days' hospitalization with a week's supply of cortisone to be taken at the rate of 200 mg. per day.

On June 15, 1951, when the patient was observed in the office, she reported that the lesions had reappeared and were painful after she had gone 18 hours without cortisone. Another course of one week's duration was prescribed, and at the end of that time the lesions were faded and painless and there was no further swelling or pain in the joints.

DISCUSSION

The erythema nodosum in this case was presumably caused by a previous viral "flu-like" illness. That the initial excellent clinical improvement following use of cortisone was not a spontaneous remission was evidenced by the prompt relapse when the hormone was discontinued for the first time.

As in other diseases manifested by hypersensitivity phenomena, in erythema nodosum cortisone does not alter the fundamental underlying disease. Rather, it changes the bodily response at the tissue level to the noxious agent.^{4, 5, 6} Hence a relapse occurred after the first brief course of cortisone was concluded despite the immediate dramatic and salutary effect of cortisone. However, the immediate relief of fever, arthralgia, constitutional and other symptoms with the prompt regression of the skin lesions was striking and unquestionable, particularly in light of the poor results with penicillin and other measures attempted previously.

The prompt relief of distressing symptoms warranted the use of cortisone from the patient's viewpoint in view of the lack of other efficacious therapy. Whether the disease is actually shortened in any given case is difficult to ascertain because of the variable duration in untreated cases. Early and adequate treatment with cortisone might reasonably be expected to prevent the long duration of the disease which occurs in some 10 per cent of cases.

SUMMARY

In a case of erythema nodosum, prompt remission followed cortisone therapy after treatment with penicillin was ineffective. Brief relapse occurred when cortisone was discontinued. Symptoms abated when a second one-week course of the hormone was given and then did not recur.

135 West 14th Street.

ACKNOWLEDGEMENT

Grateful appreciation is given to Dr. E. Granville Longley for permission to record this case.

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Waterhouse-Friderickson Syndrome

Recovery of a Patient Treated with Cortisone

JAMES T. FOWLER, JR., M.D., Long Beach

THE clinical entity of severe meningococcemia with purpura, cyanosis and shock, was until recent years always fatal. Since the advent of penicillin, sulfonamides and adrenocortical extract, a few cases in which the patient recovered have been reported.

The cause of death in this disease is damage to the adrenal glands, either from gross hemorrhage into the organs or degeneration of them as a result of the overwhelming sepsis.

Since the discovery of cortisone, reports of several cases in which the drug was successfully used in treatment have been published.^{1, 2}

The following case is reported because it was so severe that the patient probably would have died save for cortisone therapy.

REPORT OF A CASE

A three-year-old white female was admitted to St. Mary's Long Beach Hospital on June 8, 1951, in critical condition. Twelve hours prior to admission, high fever and headache had developed. The patient had spent a restless night and had vomited once. Six hours after the onset of fever, a rash appeared over the body and extremities. At first erythematous and discrete, it gradually became confluent and purpuric. The high fever continued and the child gradually became comatose.

When examined upon admission, the patient was stuporous but could be aroused by stimulation. Cyanosis of the lips and nail beds was noted. The skin was cold and clammy. Petechial and ecchymotic eruptions, the largest 3x4 cm. in diameter, covered the body and extremities. The pulse was barely perceptible and the rate could not be determined. The rectal temperature was 105° F. The patient appeared to be moribund. There was no local or general glandular enlarge-

ment. Both ear-drums were intact and normal. A purulent postnasal drip was noted, and the capillary vessels in the pharynx were distended. The pupils were round, regular and equal and reacted to light. No abnormality was noted in percussion and auscultation of the lungs. Percussed, the heart seemed to be normal in size. In stethoscopic examination the sounds were very faint and the pulsation rapid. The rate could not be counted. A reading of the blood pressure was unobtainable. The abdomen was soft and non-tender. The tip of the spleen was palpable. The external genitalia were normal in appearance. The deep reflexes were hypoactive. Superficial reflexes were present. Kernig's sign and Brudzinski's sign were elicited.

An x-ray film of the chest was essentially normal. Except for a pulse rate of 166 to 188 per minute, no abnormality was noted in an electrocardiogram. Erythrocytes numbered 3,640,000 per cu. mm. and the hemoglobin content was 10 gm. per 100 cc. Leukocytes numbered 16,400 with a normal cell differential. The platelet count was 185,640. Many hyaline and fine granular casts were noted in examination of the urine. In the spinal fluid there were 10 lymphocytes per cu. mm. The sugar content was 50.1 mg. per 100 cc. and the protein content 35 mg. No organisms were observed in a smear of the fluid and none grew on a culture.

Gram-negative diplococci grew on a culture of blood taken at the time of admission.

The patient was placed in an oxygen tent and given 25 mg. of cortisone intramuscularly every four hours. Four hundred thousand units of penicillin in aqueous solution and 1 gm. of streptomycin were given intramuscularly immediately, and an infusion of 5 per cent glucose solution was started. Sulfadiazine, 0.1 gm. per pound of body weight per day, was given by mouth several hours later when the patient was able to take fluids by mouth. Four hours after admission the patient's color improved, the blood pressure was 70 mm. of mercury systolic and 40 mm. diastolic, and the pulse rate was 130 per minute. During the next 12 hours there was gradual improvement in the patient's condition and the cyanosis cleared. Small amounts of fluids were taken by mouth. The blood pressure rose to 80 mm. of mercury systolic and 50 mm. diastolic. The rash became more erythematous except for the large ecchymotic areas. For the next three days the patient gradually improved further. The temperature returned to normal and the oxygen was discontinued. On the fifth hospital day the average number of circulating eosinophils was 88.8 per cu. mm. and cortisone was discontinued. The rash gradually disappeared and the patient was discharged on the tenth hospital day.

SUMMARY

A three-year-old child with a severe case of Waterhouse-Friderickson syndrome recovered following treatment with cortisone.

It is believed that cortisone is a valuable aid in treating patients with the disease and in tiding them over the critical phase of the disease.

1228 Pine Avenue.

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EDITORIAL

The A.M.A. Clinical Session

California will be signalily honored next month, when the American Medical Association will hold its 1951 Clinical Session in Los Angeles. The meeting is scheduled for December 4 to 7, inclusive, and will be preceded by the annual Public Relations Conference, which will convene at noon on December 2 and continue through December 3.

Coming on the heels of the December 1-2 meeting of the C.M.A. House of Delegates meeting, the A.M.A. session should be particularly attractive to California physicians.

Interim sessions of the A.M.A. House of Delegates were started several years ago as a means of relieving the House of Delegates of the pressure resulting from twelve months' accumulation of business. As official business meetings the interim sessions tended to expedite the official work of the A.M.A. in a most satisfactory fashion. At the same time, these meetings were of a size which made it possible to arrange them in some of the nation's cities which could not house the huge annual sessions.

When it became apparent that the interim sessions could be held in cities such as St. Louis, Cleveland, Denver, Houston and Los Angeles, it was decided to add to the House of Delegates meetings some clinical sessions, scientific exhibits, technical

exhibits and some of the other educational features of the large annual meeting. This has been done with great success, and the resulting meetings have been described as bringing the latest clinical information to all regions of the country which cannot ordinarily be served by the annual gathering.

In fixing the interim meeting in such cities as are listed above, the A.M.A. has wisely relied upon local physicians and institutions in drawing up the program. In this way the physicians in the meeting city have the opportunity of putting on the program for the benefit of their colleagues from other areas. It is evident that the profession in Los Angeles and environs will acquit itself nobly for the benefit of all other sections of the country.

Arrangements for the A.M.A. interim session have been handled through a number of committees appointed by the Los Angeles County Medical Association, and all advance appearances indicate that the entire session will be extremely well run. Los Angeles, honored for the first time with an A.M.A. meeting, has turned to the task with typical vigor and enthusiasm.

Here is a chance for California physicians to visit a full-fledged A.M.A. meeting in their own front yard. Such an opportunity comes seldom and should definitely be grasped.



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NOTICES AND REPORTS

C.M.A. Public Relations Service Available to County Societies

Based upon the simple, down-to-earth formula of "being good, doing good—and then telling the public about it," the much discussed, long planned and long awaited grass roots public relations program of the California Medical Association is now under way.

The plan, initiated by the Advisory Planning Committee,* and approved by C.M.A.'s Council, stresses two major points: the provision of round-the-clock medical service regardless of ability to pay, through the full use of existing local facilities and the establishment and activation of public service committee (fee committees or ethics committees) within the county medical societies, where patients may have a hearing and an answer to real or fancied complaints against a member of the profession.

Since all or parts of this program are already in effect in several of the county societies, it is C.M.A.'s hope that eventually the profession may tell all Californians—statewide—of its interest and accomplishments in their behalf.

Once this is done, C.M.A. officials point out, there can be no valid political demand for State Medicine.

The first objective, medical care for all—24 hours a day—requires the organized effort of the societies to see that every person, regardless of financial status, receives the best of treatment on a full-pay, part-pay or charity basis.

An objective analysis reveals that the first phase—the guarantee of medical care—is already being largely met through private physicians and county or other welfare facilities. In other words, all the doctors are, at the present time, caring for all the patients in their particular area regardless of the economic status of any particular individual. Once the program is properly organized, with each member of the profession playing his proportionate part, the story of the doctors' good deeds can be told to the public with complete assurance.

*The Advisory Planning Committee is composed of the following county medical society executive secretaries: Rollen Waterson, Alameda-Contra Costa; Frank Kilm, San Francisco; Robert Wood, Jr., San Mateo; Joseph Donovan, Santa Clara; Roy B. Jensen, Fresno; Vance Venables, Kern; Stanley Cochems, Los Angeles; William Tobitt, Orange; and Kenneth Young, San Diego, together with a representative of the Public Health League, a member of C.M.A.'s legal counsel and C.M.A.'s executive personnel.



ED CLANCY, *Director of Public Relations*

Perfection of the emergency call telephone service throughout the state in areas where this system is not in operation will meet a long recognized public need. At the same time it will quiet the cry of "not enough doctors" and help diminish the threat of the back-door approach of government control of medicine through federal subsidy of medical schools.

C.M.A. will provide the funds for a modest advertising campaign to tell of the availability of the emergency call service.

All advertising will be done under the name of the county society.

The second objective—the protection of the public against certain abuses such as unnecessary or incompetent procedures, excessive fees and unethical acts, imagined or real—will be realized through



GLENN W. GILLETTE



J. L. PETTIS

the establishment of a forum within the society where patients' complaints may be aired. Experience has shown that malpractice actions have decreased in accordance with the degree to which county societies have indoctrinated their members as to the value of all aspects of the program. *It is not the intent that the program shall be approached with the attitude that the patient is always right and the doctor wrong—or vice versa.*

The public relations value to the profession accrues right from the start, by really having and recognizing the need of the public for an official body to act on complaints.

Frequently these complaints are no more serious than a misunderstanding between physician and patient on a minor detail. Yet, until or unless it is explained to the satisfaction of the patient a malpractice suit is festering and forging its way to the court house. Good public relations—being good and doing good—can prevent it.

A hearing before a competent, sincere and forthright public service committee is certain to bring about a greater mutuality of satisfaction to all parties than is one conducted in a courtroom.

The elected leaders of C.M.A. recognize that the program will not be accomplished overnight.

In addition, they know—as does the executive personnel of the public relations staff they have employed—of the generally fine public relations currently enjoyed by the profession; and they know that the poor public relations result from the actions of but a small percentage of the doctors. To further inform the public of the positive actions of the profession to maintain high medical standards, and to

spread the knowledge of the availability of that high type of medical care, while at the same time curing certain sore spots within the profession, is the blueprint of "Operation Public Relations."

The public relations staff will actually be *at the command of the officials of the various county societies*. At the beginning of the program it is expected they will be invited to assist the implementation of the public relations objectives in counties where no executive secretary is regularly employed.

It should be emphasized, if emphasis be needed, that all societies are to continue their autonomy in public relations as in all other matters on a local level. C.M.A.'s public relations staff is to be considered *their extra personnel*, to assist only when a request for assistance is made, but to be available for the plans herein outlined and for any other service they can perform for the local society.

By action of C.M.A.'s Executive Committee, John Hunton, Executive Secretary, will have over-all supervision of the new program.

Ed Clancy of C.M.A.'s Southern California office has been named Director of Public Relations. He will continue to make his headquarters in Los Angeles with the exception of the time spent in Sacramento during the sessions of the Legislature where for the past several years he has worked in cooperation with the Public Health League of California.

Two associates, Glenn W. Gillette, formerly of Whitaker & Baxter and more recently the executive secretary of the Fresno County Medical Society, and J. L. Pettis, who has resigned from United Air Lines as assistant to the president, W. A. Patterson, to come with C.M.A., are the other staff members.

Council Meeting Minutes

Tentative Draft: Minutes of the 385th Meeting of the Council of the California Medical Association, Los Angeles, September 22, 1951.

The meeting was called to order by Chairman Shipman at 9:30 a.m., Saturday, September 22, 1951, in Conference Room 5 of the Biltmore Hotel, Los Angeles.

Roll Call:

Present were President MacLean, President-elect Alesen, Speaker Charnock, Councilors Ball, Loos, Sampson, Morrison, Ray, Lum, Green, Pollock, Frees, Thompson, Shipman, Varden and Heron, Secretary-Treasurer Daniels and Editor Wilbur.

Absent for cause: Councilors West, Dau, Montgomery and Bailey.

A quorum present and acting.

Present by invitation during all or a part of the meeting were Vice-Speaker Randel, Executive Secretary Hunton, Assistant Executive Secretary Thomas, Legal Counsel Hassard, Public Relations Director Clancy, public relations representatives Glenn W. Gillette and J. L. Pettis; Mr. Ben Read, executive secretary of the Public Health League of California; county society executive secretaries Waterson of Alameda-Contra Costa, Jensen of Fresno, Venables of Kern, Cochems of Los Angeles, Tobitt of Orange and Wood of San Mateo; Messrs. Clem Whitaker, Jr., and Ned Burman of public relations counsel; Dr. D. H. Murray, legislative chairman; Dr. Ellis Sox of the State Department of Public Health; Dr. Eugene Hoffman; and Dr. Donald Cass and Mr. John McMahon of California Physicians' Service.

1. Minutes for Approval:

(a) On motion duly made and seconded, minutes of the 384th meeting of the Council, held June 24, 1951, were approved.

(b) On motion duly made and seconded, minutes of the 227th meeting of the Executive Committee, held July 5, 1951, were approved.

(c) On motion duly made and seconded, minutes of the 228th meeting of the Executive Committee, held August 15, 1951, were approved.

2. Membership:

(a) A report of membership as of September 20, 1951, was received and ordered filed.

(b) On motion duly made and seconded, 149 members whose current dues had been received since the last Council meeting were voted reinstatement.

(c) On motion duly made and seconded in each instance, nine applicants were elected to Associate Membership. These were:

Catherine Baird, Wm. Allen Longshore, Jr., and Frank C. Ruys, Alameda-Contra Costa; Dorothy Bartels, San Diego; Frederick G. Bills, Arnold Manson, Eugene Spohn, and C. R. Strickland, San

Francisco; Daniel Lieberman, Sonoma County.

(d) On motion duly made and seconded, Dr. Arthur Amos Arehart of Monterey County was elected to Retired Membership.

(e) On motion duly made and seconded in each instance, the dues of 10 applicants were ordered reduced for postgraduate study or for protracted illness.

3. Financial:

(a) A report of bank balances as of September 20, 1951, was received and ordered filed.

(b) On motion duly made and seconded, the sum of \$1,000 was appropriated to cover the cost of office reconstruction to meet present office needs.

(c) Report was made that New Mexico Physicians' Service had made additional repayments of \$1,500, reducing its note to the Association to \$9,250.

4. Committee on Industrial Accident Commission:

On motion duly made and seconded, the Committee on Industrial Accident Commission was authorized to retain additional professional assistance in the current phase of its activities, the present appropriation of \$15,000 to cover such cost.

Dr. Frees suggested that a recommendation be made to this committee to work with representatives of the hospital groups in preparing future fee schedules.

5. Committee on Public Health and Public Agencies:

Chairman Alesen and Dr. Ray discussed the problems presented by Resolution No. 9 of the 1951 House of Delegates, dealing with the selection of physicians to treat crippled children's cases. Dr. Ellis Sox of the State Department of Public Health stated that his department was willing to work on any objective criteria developed in this line and it was agreed to follow the present criteria until a better system of selection of physicians is developed.

On motion duly made and seconded, it was voted to approve the agreement recently reached with the National Foundation for Infantile Paralysis and discussed at earlier meetings.

On motion duly made and seconded, it was voted to establish a committee to work with the State Department of Public Health and the Rehabilitation Bureau of the State Department of Education in the establishment of a broader interpretation in the selection of physicians for both crippled children's and rehabilitation cases.

Dr. Daniels reported on the joint C.M.A., State Department of Health and California Tuberculosis Association survey of Mendocino County health facilities. The report recommended: (1) The establishment of a full-time health department in Mendocino County either alone or in conjunction with Lake or Sonoma County, as Mendocino sees fit;

(2) the appointment of two assistant county physicians, one in the Fort Bragg area and one in the Willits area to care for county patients in these areas; (3) the hospitalization of county patients in local private hospitals under the care of the county physician and the assistant county physician; (4) the abandonment of the present county hospital as a hospital with its use being continued for an old people's home; (5) Mendocino county to make arrangements with neighboring counties or sanitaria for the hospitalization and care of all tuberculosis patients. On motion duly made and seconded, the Council gave approval to the above program.

The State Department of Public Health and the California Tuberculosis and Health Association have both indicated their agreement with these recommendations.

6. Committee on Rural Health:

On motion duly made and seconded, Dr. Henry Randel was appointed chairman of the Committee on Rural Health, a special committee of the Council, and was authorized to select his committee members.

7. Advisory Planning Committee:

Mr. Hunton reported that the Advisory Planning Committee had voted to request the appointment of Messrs. Roy Jensen, executive secretary of the Fresno County Medical Society, and J. L. Pettis, C.M.A. public relations representative, as members of the committee, and the reappointment of Mr. Glenn W. Gillette as a member. On motion duly made and seconded, these appointments were voted.

Mr. Hunton also reported on the committee's discussion of the current public relations program and on the first two visits made by C.M.A. officers to the county medical societies. The second such visit was to Merced County, where difficulties have again arisen around the operations of the county hospital. The board of supervisors of the county, after having approved a set of by-laws in consonance with accepted operating standards of county hospitals, has more recently rescinded such action and adopted by-laws which in effect would make the hospital available for all types of cases. A long-range program of public education was suggested to meet this situation.

8. Legal Department:

Mr. Hassard reported in detail on the current litigation in San Diego County.

9. Executive Session:

At this point the Council went into Executive Session, arising therefrom before proceeding.

10. Blood Bank Commission:

Report was made that the Kern County Medical Society had received a gift of more than \$50,000 for the construction of a blood bank in Bakersfield, to be known as the Houchin Community Blood Bank. A loan of \$15,000 to cover organizational expenses of the blood bank was requested of the C.M.A. loan fund, and on motion duly made and

seconded, approval was given for such a loan, to be made under the same conditions and terms as similar loans to other blood banks.

Mr. Hunton reported that Dr. John Upton, chairman of the Blood Bank Commission, had arranged a public meeting in Redding, at which plans were made for the establishment of a blood bank in that city, to serve the northern counties. This would complete the system of 11 blood banks throughout the state previously approved by the Council.

11. 1951 Interim Session of House of Delegates:

On motion duly made and seconded, it was voted to hold the Interim Session of the House of Delegates at the Hotel Biltmore, Los Angeles, on December 1 and 2, 1951, rather than in the San Francisco location previously voted.

12. Section Delegates to A.M.A.:

Motion was made and seconded that the Association defray the expenses to meetings of the A.M.A. House of Delegates of California physicians who are delegates from the A.M.A. sections. On vote, this motion was not carried but the Council agreed that such delegates be extended all courtesies in the facilities of the California delegation.

13. Student A.M.A.:

Dr. Donald Cass suggested that the Association defray the expenses of one delegate from each Student A.M.A. chapter to their national meetings and on motion duly made and seconded, it was voted to meet such expenses if the A.M.A. itself does not do so.

Mr. Hunton reported on a conference with a representative of the University of California chapter of the Student A.M.A., at which plans were made for discussion of medical-economic and legal topics with the chapter.

On motion duly made and seconded, the Council voted to accept with regret the resignation of Dr. William Goodrick Donald as C.M.A. representative on the Advisory Committee to the Student A.M.A. chapter at University of California, and to express to Dr. Donald the Association's best wishes for his improved health. It was agreed to leave the naming of his successor in the hands of the Executive Committee.

14. Public Policy and Legislation:

Dr. Dwight H. Murray, legislative chairman, and Mr. Ben H. Read, executive secretary of the Public Health League of California, discussed federal and state legislation.

Mr. Howard Burrell, legal counsel for the Association of California Hospitals, discussed a proposed constitutional amendment to come before California voters at the next general election, the effect of which would be to permit the granting of state hospital construction funds to private non-profit hospitals. On motion duly made and seconded, it was voted to approve this proposed amendment, on the understanding that the Association does not favor

federal or state subsidies but approves this provision as a better solution of existing statutory provisions than is now contained in the laws.

15. California Physicians' Service:

Mr. John McMahon of California Physicians' Service reported that as of July 31, 1951, C.P.S. had 10,832 physician members and 960,008 beneficiary members. He stated that the conversion of contracts was proceeding rapidly and that it was believed that by the end of 1951 C.P.S. will be able to meet 100 per cent payments on the fee schedule. Payments are now made at 90 per cent.

Dr. Donald Cass, C.P.S. president, reported on the cooperation given by C.P.S. to both the Study Committee and the Fee Schedule Committee and urged that all possible speed be made by both committees.

16. California State Chamber of Commerce:

On motion duly made and seconded, it was voted to renew the \$1,000 annual subscription to the California State Chamber of Commerce.

17. American Public Health Association:

On motion duly made and seconded, it was voted to ask Dr. Louis Regan to represent the Association at the annual meeting of the American Public Health Association.

18. Committee on Scientific Work:

Dr. Albert C. Daniels, chairman of the Committee on Scientific Work, requested that Dr. Lawrence White be appointed chairman of the Committee on Local Arrangements for the 1952 Annual Session in Los Angeles, that Drs. Jay F. Crane and George Henry be appointed members of this committee and that the Los Angeles County Medical Association be asked to name two additional members. On motion duly made and seconded, this committee was approved.

19. Judicial Request on Sex Perversion Cases:

A letter from a Superior Court judge in Los Angeles County, asking for medical assistance in the consideration and handling of sex perversion cases, was read and ordered referred to the Los Angeles County Medical Association for cooperation in the county area.

20. Veterans' Administration:

Dr. Daniels reported that the Veterans' Administration has adopted a new policy which permits VA facilities to admit outpatients for one-day periods, a system which permits the payment of travel expenses and tends to reduce the average stay of hos-

pital patients. On motion duly made and seconded, it was voted to appoint a committee to consider and make recommendations on this matter. Dr. Walter Baro was named chairman of this committee and Drs. Berthel Henning and Albert C. Daniels members.

21. Public Relations:

Mr. Clem Whitaker, Jr., public relations counsel, reported that the next general election ballot would carry an initiative measure which would provide numerous medical and hospital services to recipients of old-age assistance.

22. Woman's Auxiliary to the C.M.A.:

Dr. MacLean read a letter received from the president of the Woman's Auxiliary to the C.M.A., asking assistance on several items. This was ordered referred to the Executive Committee.

23. Diabetes Detection Drive:

On motion duly made and seconded, it was voted to appoint Dr. H. Clare Shepardson of San Francisco as chairman of a committee to cooperate in the Annual Diabetes Detection Drive, the chairman to select his own committee.

24. Medical Education Funds:

On motion duly made and seconded, it was voted to refer to the Executive Committee a 1951 House of Delegates resolution asking the establishment of a medical education fund by the Association.

25. CALIFORNIA MEDICINE Editorial:

An editorial outlining the objectives of the public relations program was presented to the Council at the request of the Editor and was approved for publication.

26. Study of Medical Needs:

Dr. Charnock suggested the consideration of a study of medical care needs throughout the state, on a similar basis to the Mendocino County study already made. It was pointed out that one part of the public relations program would be to investigate any unmet medical needs in all counties.

27. Time and Place of Next Council Meeting:

It was agreed to hold the next meeting of the Council in San Francisco on November 11, 1951.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 5:30 p.m.

SIDNEY J. SHIPMAN, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

Special Announcement

CALIFORNIA MEDICAL ASSOCIATION ANNUAL MEETING Los Angeles, April 27 - 30, 1952

The 1952 Annual Session of the California Medical Association will be held in Los Angeles, Sunday, April 27, to Wednesday, April 30, inclusive.

PAPERS: If you have a paper you would like to have considered for presentation, it should be submitted to the appropriate section secretary (see list on this page).

SCIENTIFIC EXHIBITS: Limited space will be available for scientific exhibits. If you would like to apply for space, please write immediately to the office of the California Medical Association, 450 Sutter Street, San Francisco 8, for application blanks. Please indicate *exact* space requirements. No exhibit shown in 1951, and no individual who had an exhibit at the 1951 session, will be eligible until 1953. *No requests for space will be considered after December 1, 1951.*

MOTION PICTURES: There will be facilities available for motion pictures. If you would like to exhibit, send your application to Dr. A. E. Smith, 1930 Wilshire Boulevard, Los Angeles.

All applications for scientific exhibit space and for time on the scientific program should be transmitted as soon as possible. The deadline is December 1, 1951.

**ALBERT C. DANIELS, Chairman,
Committee on Scientific Work**

SECRETARIES OF SCIENTIFIC SECTIONS

Allergy

Grace M. Talbott,
909 Hyde St., San Francisco 9

Anesthesiology

Nevin H. Rupp,
Veterans Adm. Center, Los Angeles 25

Dermatology and Syphilology

Kenneth L. Stout,
9629 Brighton Way, Beverly Hills

Eye, Ear, Nose and Throat

Robert C. McNaught, Stanford University
School of Medicine, San Francisco 15

General Medicine

J. Malcolm Stratton,
2560 Bancroft Way, Berkeley 4

General Practice

Merlin L. Newkirk,
3224 Santa Ana, South Gate

General Surgery

Paul C. Samson,
2938 McClure Street, Oakland 9

Industrial Medicine and Surgery

Orris R. Myers,
525 Seventh Street, Eureka

Obstetrics and Gynecology

Donald W. deCarle,
2000 Van Ness Avenue, San Francisco 2

Pathology and Bacteriology

Charles M. Blumenfeld,
2907 J Street, Sacramento

Pediatrics

Alvin H. Jacobs,
2201 Webster Street, San Francisco

Psychiatry and Neurology

Cyril B. Courville,
1801 New Jersey Street, Los Angeles 23

Public Health

John R. Philp,
0170 Civic Center, San Diego 1

Radiology

Robert K. Arbuckle
Samuel Merritt Hospital, Oakland

Urology

Roger W. Barnes,
1216 Wilshire Boulevard, Los Angeles

In Memoriam

BACCUS, CLYDE F. Died in Culver City, September 10, 1951, aged 65. Graduate of the University of Illinois College of Medicine, Chicago, 1911. Licensed in California in 1932. Dr. Baccus was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



COEUR-BARRON, FREDERICK H. H. Died in Los Angeles, September 24, 1951, aged 58, of coronary artery disease. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1924. Licensed in California in 1925. Dr. Coeur-Barron was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



COULTER, JAMES D. Died in Reno, Nev., August 23, 1951, aged 44, of coronary occlusion. Graduate of the University of California Medical School, Berkeley-San Francisco, 1933. Licensed in California in 1933. Dr. Coulter was a member of the Lassen-Plumas-Modoc County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.



DAVIS, BENJAMIN F. Died in San Marino, August 26, 1951, aged 67. Graduate of Rush Medical College, Chicago, 1912. Licensed in California in 1938. Dr. Davis was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



DIXON, HOWARD B. Died in San Francisco, September 21, 1951, aged 63. Graduate of the Hahnemann Medical College of the Pacific, San Francisco, 1913. Licensed in California in 1913. Dr. Dixon was a member of the San Francisco Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



DOLMAN, PERCIVAL. Died in San Francisco, September 16, 1951, aged 76, of coronary artery disease. Graduate of the Cooper Medical College, San Francisco, 1905. Licensed in California in 1905. Dr. Dolman was a member of the San Francisco Medical Association, the California Medical Association, and the American Medical Association.



GAYNOR, JOSEPH. Died in Los Angeles, September 16, 1951, aged 58. Graduate of the Universita Karlova Kagulta Lékárska, Praha, Czechoslovakia, 1920. Licensed in California in 1924. Dr. Gaynor was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.



HUTCHISON, CHARLES W. Died in Los Angeles, September 18, 1951, aged 68, of coronary artery disease. Graduate of the University of Illinois College of Medicine, Chicago, 1908. Licensed in California in 1910. Dr. Hutchison was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



ROSE, HOMER D. Died in Sonora, September 26, 1951, aged 69. Graduate of the College of Physicians and Surgeons, Los Angeles, 1914. Licensed in California in 1914. Dr. Rose was a member of the San Joaquin County Medical Society, an associate member of the California Medical Association, and an Associate Fellow of the American Medical Association.



ROWELL, WILLIAM A. Died in Berkeley, September 10, 1951, aged 83. Graduate of the Cooper Medical College, San Francisco, 1891. Licensed in California in 1892. Dr. Rowell was a member of the Shasta County Medical Society, a life member of the California Medical Association, and a member of the American Medical Association.



SAMPSON, MAY H. Died in Berkeley, September 21, 1951, aged 81. Graduate of the Cooper Medical College, San Francisco, 1906. Licensed in California in 1906. Dr. Sampson was a member of the Alameda-Contra Costa Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



SHERMAN, JULIUS. Died in Palo Alto, August 24, 1951, aged 61. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1916. Licensed in California in 1916. Dr. Sherman was a member of the San Francisco Medical Association, the California Medical Association, and a Fellow of the American Medical Association.



WHITE, JOHN F. Died in La Mesa, August 15, 1951, aged 77. Graduate of the College of Physicians and Surgeons of San Francisco, 1897. Licensed in California in 1898. Dr. White was a member of the San Diego County Medical Society, a life member of the California Medical Association, and a Fellow of the American Medical Association.

Questions and Answers about C.P.S.

Question: Please clarify the use which C.P.S. intends should be made of the new green envelopes which are marked for the attention of the Medical Director.

Answer: These green envelopes were devised to speed the handling by C.P.S. of claims from physicians on complicated or unusual treatment rendered to C.P.S. patients. Such claims customarily are brought to the attention of the Medical Director, and a saving of time and special medical consideration is effected by having them sent directly to the Medical Director—instead of having them routed through the normal processing channels as is done with routine claims.

Early experience with these envelopes indicates, however, that their purpose is being misunderstood. Instead of restricting their use only to complicated or unusual cases, many physicians are using the green envelopes for routine bills.

In addition, when a claim is sent in the green envelope, it should be accompanied by a short report from the physician, describing the particular problem involved in the case.

Question: For services which are not a benefit of a beneficiary member's C.P.S. contract, can the physician charge his usual fee even though the member's income is below the income ceiling?

Answer: Yes. The terms of a C.P.S. member's contract, which includes the income clause, do not apply for services which are not benefits of his coverage. In other words, the C.P.S. income ceiling does not become a factor unless the services rendered are benefits of the member's contract.

Question: In the new C.P.S. contracts, are x-ray and laboratory services paid in addition to the \$50.00 allowance for maternity care?

Answer: No. The \$50.00 allowance is applied toward the physician's total fee for prenatal care, delivery and postnatal care, including any x-ray and laboratory services.

Attention: C.P.S. Physician Members

When physicians enclose notes of explanation with bills submitted to C.P.S., the notes and the bills should be attached to prevent them from becoming separated during processing. In addition, the patient's C.P.S. member and group numbers and the physician's name should be listed so the notes can be properly identified if they become separated from the bills.

Question: If 60 days have elapsed since I sent a bill to C.P.S., and I have not received my payment or a rejection, is it advisable to rebill?

Answer: Yes. C.P.S. can virtually guarantee that, within 60 days, a physician will receive payment or a rejection of his bill, or that he will receive communication from C.P.S. regarding the claim. If he has not heard anything about his bill in that time he should, in his own interest, submit a new bill marked "duplicate," or write a letter of inquiry to the C.P.S. Medical Department.

When the physician has not had some kind of action on a bill in two months, there is the possibility that his claim has been misdirected to some other organization. This possibility is assumed from the fact that C.P.S. often receives bills which should have been sent by the doctor's office to a private insurance company or Blue Cross. Conversely, there are probably instances where C.P.S. bills are sent mistakenly to an insurance company or Blue Cross.

Question: Why does C.P.S. stipulate that physicians' bills to C.P.S. must be submitted within six months from the month of service in order to be considered for payment?

Answer: Sound business practice dictates that this regulation be observed. Without the six months' limitation, C.P.S. would not have any way of determining the extent of unreported claims. Obviously, it would not be financially prudent to conduct C.P.S. on that basis. As well as protecting C.P.S., the time limit also allows ample time for physicians to submit bills.

In an instance where the physician did not submit a bill to C.P.S. within six months because of the patient's failure to identify himself as a C.P.S. member, the physician is entitled to bill the patient directly because it is the latter's obligation to make his C.P.S. membership known to the physician.

Question: Sometimes in my work with veteran patients it has been necessary to have services performed outside my office—that is, by radiologists, physiotherapists, clinical technologists or consultants. Even though this referred work has been authorized by the Veterans Administration, there have been instances where I have been informed later that VA cannot pay for it.

Answer: Each authorization is insured for a specific period and this question obviously pertains to instances where the referred work was not performed during the period of authorization. The Veterans Administration will not make payment for services, even though authorized, if they are not performed during the stated authorization period. Reason: Government funds which have been encumbered cannot be used beyond the time stated in the authorization.

NEWS and NOTES

NATIONAL • STATE • COUNTY

FRESNO

Two hundred and fifteen physicians from Fresno, Kings, Madera, Tulare, Kern, Merced, Mariposa and Stanislaus counties attended the Second Annual San Joaquin Valley Regional Medical and Surgical Institute held last month in Fresno. Average attendance at each lecture in the two-day program was 150.

The program, planned by a regional committee with Dr. Thomas A. Collins of Fresno as chairman, was one in a series of regional meetings sponsored by the California Medical Association. Arrangements for lecturers were made with the University of California School of Medicine by the C.M.A. Committee on Postgraduate Activities.

Entertainment for the wives of physicians who attended the meeting was arranged by the Woman's Auxiliary to the Fresno County Medical Society.

LOS ANGELES

Postgraduate study primarily designed for the general practitioner will be the theme of the 1951 Clinical Session of the American Medical Association to be held in Los Angeles, December 4 to 7. "Therapy will be stressed in a broad presentation of clinical studies on problems the general practitioner meets in daily practice," Dr. George F. Lull of Chicago, secretary and general manager of the A.M.A., stated, "Subjects of interest to the specialist also will be presented."

The four-day scientific program will include discussions and presentations on urology; general practice; general surgery; cardiovascular disease; industrial medicine and surgery; eye, ear, nose and throat diseases; diseases of the chest, and neuropsychiatry. Others will be on medical banks, radiology, anesthesia and pathology, traumatology as related to civil defense, obstetrics and gynecology, dermatology, internal medicine and pediatrics.

"In addition," Dr. Lull said, "practical clinical discussions, scientific exhibits and general lectures on basic problems are planned."

Color television to demonstrate surgery, clinical treatment and examination procedure will be one of the highlights of the convention.

* * *

Announcement of the appointment of Dr. Wendell H. Griffith as professor of physiologic chemistry and chairman of the department in the new University of California at Los Angeles School of Medicine was made last month by Dr. Stafford L. Warren, dean.

SAN FRANCISCO

Dr. Karl F. Meyer, director of the Hooper Foundation for Medical Research, University of California, was presented with the Lasker Award at the annual meeting of the American Public Health Association held last month in San Francisco. Dr. Meyer was one of the six medical scientists to receive the award, which is given for outstanding contributions in research related to diseases which are the main causes of death and disability, and for distinguished service in the field of public health administration.

The program for the meeting of the Northern California Rheumatism Association to be held November 30 in the Marine Memorial Building, 609 Sutter Street, San Francisco, follows:

6:15 p.m., Refreshments; 7:00 p.m., Dinner.

Business Meeting

Chairman of Symposium—Stacy R. Mettier, president
Differential Diagnosis between Rheumatoid Arthritis and Osteoarthritis—Ephraim Engleman.

Osteoarthritis of the Cervical Spine—Willard G. Snow.

Effects of Posture on Osteoarthritis of the Knee Joint—John J. Loutzenheiser.

Diagnosis and Management of Patients with Malum Coxae Senilis—Frederic C. Bost.

Low Back Pain—S. M. Dorinson.

"Physicians are cordially invited to attend," the association's announcement said; and request was made that those planning to be present send a check for the dinner (\$4 per plate) to Frances Baker, M.D., Secretary, No. 1 Tilton Avenue, San Mateo, on or before November 23, 1951.

GENERAL

Prizes of \$1000 (first prize of \$500, second prize \$300, and third prize \$200) have been offered by the American Urological Association for the best essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists. The first prize essay will be given a place on the program of the meeting of the American Urological Association to be held at Atlantic City, N. J., June 23 to 26, 1952.

Full particulars may be had from the secretary, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, N. J. Essays must be in his hands before February 15, 1952.

* * *

Appointments in the Regular Navy Medical Corps are open to reserve medical officers on active duty, inactive duty and to civilian physicians, the Navy Medical Department announced recently. Interns may submit applications within the last two months of the completion date of their internship. Interns or other young physicians will not be ordered to appear for a written professional examination. Appointments are open to all ranks, but in the grade of captain the requirement is the possession of outstanding qualifications for special positions as determined by the Surgeon General. Reserve officers on inactive duty and civilian physicians may apply at the nearest Office of Naval Officer Procurement.

At the same time, the Navy announced it would make 176 **Naval hospital internships** available to medical school students graduating in 1952. Prospective interns must meet all requirements for a commission in the Medical Corps, U. S. Naval Reserve, and must serve a minimum of 24 months of active duty from the date they start intern training. Deadline for the submission of applications is January 7, 1952.

Information may be obtained at any Office of Naval Officer Procurement, or by writing to the Surgeon General of the Navy, Bureau of Medicine and Surgery, Navy Department, Washington 25, D.C.

* * *

The American Goiter Association has announced the opening of competition for the 1952 Van Meter Prize Award of \$300 and two honorable mentions for the best essays submitted concerning original work on the problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held in St. Louis, May 1 to 3, 1952, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed 3,000 words in length, and must be presented in English; and a typewritten double-spaced copy in duplicate must be sent to the corresponding secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than March 1, 1952.

* * *

The first issue of the **Journal of the Student American Medical Association**, a 72-page publication, will make its appearance in January.

To be published nine months of the year—skipping July, August and September when schools are closed—the magazine will have a circulation of more than 33,000. It will be sent to 26,191 medical students and approximately 7,000 interns.

Warren Mullen, University of Michigan Medical School, president of the Student A.M.A., appointed Philip Corso, a

senior at Tufts College Medical School, as student editor of the publication. Mr. Corso, who was editor-in-chief of the *Tufts Medical Journal*, has issued a request for "scientific articles which have appeal for the average medical student." Manuscripts may be sent to the S.A.M.A. Executive Office, 535 North Dearborn Street, Chicago.

* * *

The tenth annual meeting of the **American Academy of Dermatology and Syphilology** will be held in Chicago at the Palmer House, December 8 to 13. Principal sessions will be held December 10 to 13, with special courses in histopathology and mycology scheduled for Saturday and Sunday, December 8 and 9, at the medical schools of the University of Illinois and Northwestern University. Special courses in x-ray and radium, bacteriology of the skin, anatomy and embryology of the skin, and special problems in dermatohistopathology will be held Saturday and Sunday at the Palmer House. Further information may be obtained from Dr. John E. Rauschkold, secretary, P.O. Box 6565, Cleveland, Ohio.

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More than 100 dermatologists attended the meeting of the **Pacific Dermatologic Association** in Pasadena in September. Elected to office for one-year terms were: President, Dr. Nelson P. Anderson of Los Angeles; vice-president, Dr. C. O'Neal Rich of Salt Lake City; assistant secretary, Dr. Rees B. Rees of San Francisco. Dr. Ervin Epstein of Oakland, secretary-treasurer of the association, was reelected to that post.

BOOK REVIEWS

THE KIDNEY—Medical and Surgical Diseases. By Arthur C. Allen, M.D., Pathologist, the James Ewing Hospital; Assistant Attending Pathologist, Memorial Cancer Center, New York City. 1,115 illustrations. Grune and Stratton, New York, 1951. 583 pages. \$15.00.

This unique work belongs in the library of every internist, urologist and pathologist. It covers virtually all fields relative to the kidneys and their diseases; embryology, malformations, tumors, all varieties of acute and chronic medical and surgical types of disorders are discussed. Photographs and photomicrographs are profuse and clear, and the book is well published. Some may object to the notion of a pathologist writing of the physiology and therapy of certain renal diseases; however, there is no inherent reason why only clinicians should attempt clinicopathologic integration, and one finds here a refreshing point of view. The work is highly recommended.

* * *

MEDICAL TREATMENT IN OBSTETRICS AND GYNECOLOGY. By C. Frederic Fluhmann, B.A., M.D., C.M., Clinical Professor of Obstetrics and Gynecology, Stanford University School of Medicine, Fellow American Gynecological Society. Illustrated. The Williams and Wilkins Company, Baltimore, 1951. 157 pages. \$3.00.

Dr. Fluhmann has assembled a compendium of practical information, useful especially in the office practice of obstetrics and gynecology. This is a small book of 145 pages in which discussion has been largely eliminated, the space being devoted to simple statements of, and instructions for current therapy and diagnostic procedures. While not every obstetrician-gynecologist will subscribe to all of the recommendations, by and large, highly controversial measures have been avoided, and the suggestions are in line with common practice, or represent minor deviations therefrom.

The first chapter deals with certain investigative and diagnostic approaches and with medical therapy in a wide variety of obstetrical and gynecological conditions. In obstetrics such conditions as habitual abortion, after-pains, the care of the breasts, leg cramps, fetal death in utero, prenatal care, and the toxemias of pregnancy are dealt with. In gynecology, menstruation and its abnormalities, cervicitis, cervical erosion, the relief of pain in carcinoma of the cervix, the climacteric syndrome, contraception, endometrial hyperplasia, the investigation of infertility, kraurosis vulvae, pruritus vulvae, radiation sickness, urinary incontinence, and vaginitis as well as many others are considered.

Chapter two deals with therapeutic measures. "This section lists some of the many therapeutic preparations employed in the practice of obstetrics and gynecology with suggestions as to dosage and also clinical applications." Sub-sections on the sulfonamides and antibiotics and on the hormones of reproduction are included.

Chapter three deals with nutrition. Details of various diets, such as "Reducing Diet," "Salt-free Diets," "Low Residue Diet" are given, as well as a brief discussion of vitamin deficiencies and the use of vitamin preparations.

The fourth and final chapter includes outlines and instructions for certain hospital and office procedures. Pre-operative and postoperative routines are given. Basal body temperature, biopsy of the cervix and endometrium, hysterosalpingography, smears for cytological examination, etc., are considered. Culdoscopic and peritoneoscopic examinations are not included.

This book should prove especially useful for the young man just entering practice.

FROM A DOCTOR'S HEART. By Eugene F. Snyder, M.D. The Philosophical Library, New York, 1951. 251 pages. \$3.75.

Some have operations and write about them. Some have exotic tropical diseases, and some have coronary occlusions. The writer of this short book is a physician practicing in New York state who had an acute coronary occlusion some few years ago. As part of his convalescence he decided to write his impressions of his own case, of his treatment and of his attending physicians and friends.

Much of the autobiography is in simple language and will be understood by the average patient. A little is technical and a little allusive to many physicians, well known to the profession, but probably mere names to the average potential reader.

The material is presented partly in direct form and partly as recorded conversation between the author, his wife (also a physician) and his son (a potential medical student). Interspersed with the story of his attack, his treatment and his convalescence are flashbacks to the author's youth in Russia and to his early medical career in Czechoslovakia. The many passages bitter at the tyranny of Russian and German fascism cannot have been healthy occupational therapy as far as the patient's cardiovascular system was concerned, but presumably were of some relief to his psyche.

There are many sound points in the book. The author observes that "I have lived long enough on both sides of different curtains . . . to be firmly convinced that the only road to . . . peace is through goodwill, . . . non-appearance . . . and abolition of suspicion. . . There was a time when the Mohammedans thought that they could not exist beside the Christians, and the Catholics thought they could not live with the Protestants; but people have learned that they can live together in peace, especially when they do not try to convert each other by force. Respect for others comes through education and common labor which often produce sympathy and friendship."

The influence of the Boston School of Medicine, near which the author has lived for some years, is evident in the tendency to use personal names instead of simple descriptive terms for various pathological and other conditions. This somewhat irritating tendency is offset by a reasonable amount of quotation, partly poetical and partly philosophical. In discussing the aftercare of the cardiac patient, he emphasizes that it is better to be employed and do a little work than to retire completely "unless one possesses enough internal resources to avoid boredom and the feeling of emptiness and futility in retirement." As the Elizabethan poet John Donne wrote, "Be thine own palace or the world's thy jail."

His early career under dictatorships results in frequent allusion to the great privilege of living in America, where there is still freedom. "Of all freedoms and privileges, the right to be different and to think differently is the most precious that democracy can give."

The book is neatly printed and bound, and can doubtless be recommended to many physicians and their patients when faced with the problem of living after their own convalescence from coronary occlusion. It is to be hoped that subsequent editions will omit the rather feeble cartoons and sketches with which the first issue is somewhat liberally interlarded. The foreword by Paul White recommends the book both for its human relationships and its potential usefulness to victims with coronary heart disease.

SOMATIC DEVELOPMENT OF ADOLESCENT BOYS
—A Study of the Growth of Boys During the Second Decade of Life. By Herbert Rowell Stoltz, M.D., and Lois Meek Stoltz, Ph.D. The Macmillan Company, New York, 1951. 557 pages. \$9.00.

This monograph may seem expensive, but that is inevitable for first-class bookmaking with such an abundance of photos and graphs. These are well planned and clearly executed. Indeed the whole project was laid out with admirable foresight, as the physical part of the California Adolescent Study on teenage boys in the Oakland schools. It is a longitudinal study, that is, consecutive examinations on the same boys over seven years of pubertal growth. The serial photographs and the expression of growth in terms of gains per year (rather than absolute size) make the study of this book easier than one would anticipate when confronted with such a volume of measurements. The chapter summaries can be read with ease, even by those who do at the moment need the actual basic tabulations—pediatricians and physical educators quite generally. Those who are constantly active in school work, and those engaged in the study of growth, will want to have this monograph at hand for recurrent reading in connection with special boys or special problems.

* * *

PSYCHOTHERAPY. By Paul Schilder, M.D., Ph.D. Enlarged and Revised Edition, arranged by Lauretta Bender, M.D., Associate Professor Psychiatry, New York University College of Medicine. W. W. Norton & Company, Inc., New York, 1951. 396 pages. \$5.00.

This is a second edition of the late Paul Schilder's work. The first edition appeared in 1938. The second edition is considerably revised and enlarged by the inclusion of articles, or parts of articles, written prior to the author's death in 1941. This revision is quite appropriately carried out by Dr. Lauretta Bender, who was his wife and who is a psychiatrist of considerable prominence by her own right.

The additional material in the second edition is skillfully introduced and adds to the value of this volume. Of the volume in general, it may be said that it has much basic and valuable work on psychotherapy. The approach is a highly individual one and indicates a very full knowledge of all the various schools in psychiatry and psychoanalysis. The author, however, is quite ready to criticize and point out defects in many of these theories and advocates his own special views.

This book is highly recommended to anyone interested in the problem of psychotherapy.

* * *

PHYSIOLOGY OF THE EYE—Clinical Application. By Francis Heed Adler, M.A., M.D., F.A.C.S., William F. Norris and George E. de Schweinitz, Professor of Ophthalmology, School of Medicine, University of Pennsylvania, with 319 illustrations, including two in color. The C. V. Mosby Company, St. Louis, 1950. 709 pages. \$12.00.

Almost twenty years ago Adler realized that a detailed account of the physiology of the eye could not be found in any textbook of ophthalmology or physiology written in English. To meet this need he wrote "Clinical Physiology of the Eye." Although this book was considered an essential volume for ophthalmologists and a valuable reference to others interested in the functions of the eye, only one edition was published. During the past ten years it has become increasingly apparent that a revision of this material was needed. When the author finally began to rewrite he realized that so many advances had been made in the subject that a new book rather than a revision of the old material was needed.

The 22 chapters in the new book may be roughly divided into three sections which deal with (1) the physical properties and physiology of the various parts of the eyeball and adnexa, (2) the functional mechanisms of the eye, and (3) the physiology of vision and visual perception.

Of particular interest to ophthalmologists will be the chapters on the cornea in which the clinical significance of its metabolism and methods of preservation of its transparency are stressed; on the aqueous humor, in which arguments in favor of its formation by dialysis and secretion are set forth with unprecedented clarity; and on the ocular motility, where many practical hints for the correction of strabismus are given.

The internist will find the chapter on the ocular circulation interesting and the neurologist and neurosurgeon will appreciate the material on the neurophysiology of vision and extraocular movements. The book is well written and illustrated and is an excellent coverage of the practical physiology of the eye. It should be one of the pillars of any ophthalmologist's library. It will also be a valuable reference for other physicians and investigators.

* * *

CLINICAL UNIPOLAR ELECTROCARDIOGRAPHY. By Bernard S. Lipman, A.B., M.D., Assistant in Medicine, Emory University School of Medicine, Atlanta, Ga.; and Edward Massie, A.B., M.D., F.A.C.P., Assistant Professor of Clinical Medicine, Washington University School of Medicine. The Year Book Publishers, Inc., 200 East Illinois Street, Chicago, 1951. 222 pages. \$5.00.

This monograph on clinical unipolar electrocardiography is a very welcome addition to the books that have been published on the subject in the last several years. The authors have had considerable experience in clinical cardiology and electrocardiography and the seasoned comments in regard to the interpretation reflect this experience.

The book consists of a systematic discussion in simple language of the electrophysiology of the heart and the physiological bases of electrocardiographic abnormalities. Subsequent chapters describe the characteristic patterns seen in normal subjects, in those with left and right ventricular hypertrophy, in right and left bundle branch block and myocardial infarction. The discussion is direct and easy to follow; it is illustrated by excellent line drawings and, at the end of the book, by a series of actual electrocardiograms. Every effort has been made to present electrocardiography in a rational and not an empirical manner.

The book can be highly recommended as a simple, sound presentation of current electrocardiographic diagnosis and interpretation. Colleagues of the reviewer who have seen the book have stated that it is one of the easiest to read and understand of the current texts.

It is hoped in future editions that the subjects of vectorcardiography and the ventricular gradient will be given adequate discussion.

* * *

VISCERAL RADIOLOGY. By Emerik Markovits, M.D., formerly Scientific Collaborator of the Central Radiologic Institute of the General Hospital, Vienna; Head of the Radiologic Department of Elizabeth Hospital of the City of Budapest; Radiologist of the Steiner Cancer Clinic, Atlanta, Ga. The Macmillan Company, New York, 1951. 612 pages. \$24.00.

This interesting book is a compressed radiological diagnostic treatise, with liberal sections on differential diagnosis. The author takes up his subject under six main sections: respiratory system, circulatory system, digestive system, gastrointestinal system, genitourinary system and central nervous system.

The subject matter is treated in somewhat didactic fashion, and is illustrated more often by line drawings or diagrams than by roentgenograms. Many of the line drawings are excellent and should be of use to the beginner in radiology. Most of the roentgenograms are adequate.

The sections on pulmonary and cardiac lesions reflect the earlier teachings of the Viennese school of medicine and radiology. Those of the gastrointestinal and abdominal areas reflect an even earlier school. For example, the author has sections on gastropostis and other conditions, which can scarcely be regarded as consistent with modern concepts.

Considering the broad scope of the undertaking, the author can be regarded as having made a remarkably compact contribution. The text is clear; the indexing adequate for the purposes at hand.

* * *

CHEST X-RAY DIAGNOSIS. By Max Ritvo, M.D., Assistant Professor of Radiology, Harvard Medical School; Instructor in Radiology, Tufts Medical School; Roentgenologist-in-Chief and Director, Department of Radiology, Boston City Hospital, 615 illustrations on 418 engravings and a colored plate. Lea & Febiger, Philadelphia, 1951. 558 pages. \$15.00.

This fairly thick monograph covers the x-ray diagnosis of diseases of the chest in a series of ten sections. These sections are as follows: Lungs, mediastinum, diaphragm, pleura, bony thorax and soft tissues, soft tissues of neck, heart and great vessels, aorta, pulmonary artery and pericardium. The introductory section is sound, and the suggestions for methods of studying the roentgenograms are well laid out.

The author considers roentgenography before roentgenoscopy, which is perhaps the reverse of the ideal method of examining the chest. He implies, but does not stress adequately, the need for thorough examination. The average physician would never be content with a single posterior-anterior film of the gastrointestinal tract, by a single anterior-posterior urogram in studies of the urinary tract. However, all too many physicians attempt to reach decisive conclusions on the basis of just a single posterior-anterior roentgenogram of the chest.

One would prefer that lateral and oblique illustrations accompanied the posterior-anterior views reproduced extensively throughout the book. These reproductions are fortunately in negative form and of good quality. There are a few statements in the text and a few legends which might bear revision in the next edition. For example, on page 20 is an illustration of a rather overexposed roentgenogram of a young patient with the heading, "Normal Chest." It might be more precise to say "negative chest" or "healthy chest."

Similarly, on page 96 is an illustration entitled "Bronchitis." It is generally accepted by most radiologists and pathologists that the diagnosis of bronchitis from a single posterior-anterior chest roentgenogram is not only difficult but hazardous. On page 97 appears the statement, "An attack of acute bronchitis may reactivate an old inactive tuberculosis." Even if correct, this appears somewhat tautologic in a work of this type.

The illustration on page 478 entitled "Myocardial Calcification" looks more like calcification of the mitral annulus to this reviewer. Perhaps the author had autopsy verification of the legend, and if so this might be noted in the next edition.

The volume is well printed and well bound. The index is adequate.

HOPE AND HELP FOR THE ALCOHOLIC. By Harold W. Lovell, M.D., Doubleday & Company, Inc., Garden City, New York, 1951. 215 pages. \$2.75.

This book is directed to the alcoholic, and perhaps even more to his relatives and friends, on whose shoulders falls the burden of seeing that he is treated. Considering the incidence of the condition, it should have a good sale.

In spite of having been written for the lay reader, it is quite well done and contains much less information of questionable authority than many scientific works dealing with this subject. The factors underlying alcoholism as a disease are presented, as well as the facilities, medical and religious, for its relief. All of this should be of interest to the physician, who is frequently called on to advise the family in regard to the treatment of alcoholics. The author's conclusion is that, much as medicine has contributed to an understanding of the psychopathology of alcoholism, the results of medical treatment are far from satisfactory, and Alcoholics Anonymous can claim a better batting average than can the psychiatrist.

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OPERATIVE SURGERY. By Sir Lancelot Barrington-Ward, K.C.V.O., Ch.M., F.R.C.S. (Edin.), F.R.C.S. (Eng.), Surgeon to H.M. King George VI, Senior Surgeon, Hospital for Sick Children, and to the Royal Northern Hospital, London, etc. Second Edition, with 498 illustrations. Grune and Stratton, New York, 1951. 638 pages. \$13.50.

Most American books on surgery that emphasize the technical aspects of surgery tend to be rather highly specialized and limited in scope or excessively voluminous. The appearance of this English book on operative surgery in a single volume is appealing, and the book represents the practices of a group of 16 outstanding English surgeons all working in the same hospitals. It is an integrated volume which has the advantages of contributions by a versatile group of special surgeons who mutually understand each other's thoughts and techniques. To make the book practical and keep it concise, yet broad in scope of material discussed, one good standard procedure for each operation has been given rather than tabulate a wide variety of procedures for the same operation. General surgery, plastic surgery, head and neck surgery, orthopedic surgery, neurosurgery, and genito-urinary surgery are covered. The illustrations are clear and good.

From the reviewer's standpoint the techniques advocated are fundamentally sound but rather antiquated and not too refined as modern surgical procedures are practiced in most surgical clinics in this country. Incisions in skin creases are not stressed, even in the hand where longitudinal incisions crossing skin creases may result in deformity and impaired function, aseptic bowel techniques are not mentioned, continuous suture lines are generally illustrated throughout, and many of the techniques on the simpler surgical procedures, as around the anus, are apt to be troublesome if commonly practiced by the general surgeon. The book is good but not outstanding. It will have little appeal to specialists, for the discussion of each special field is rather limited. The general practitioner doing surgical work will find rapid help to practical problems in this book, and by and large sound practice will result from following its recommendations.

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THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By Zachary Cope, B.A., M.D., M.S. Lond., F.R.C.S. (Eng.), Consulting Surgeon to St. Mary's Hospital, Paddington, Late Hunterian Professor, Arris and Gale and Bradshaw Lecturer, Royal College of Surgeons. Tenth Edition. Oxford University Press, New York, 1951. 270 pages. \$3.50.

This is the tenth edition of a book which has become a classic in the early diagnosis of the acute abdomen. It is clearly and concisely written, adequately illustrated with diagrammatic and understandable drawings and x-rays, and

covers in excellent fashion the differential diagnosis of the acute abdomen. It affords the physician the background of information essential to evaluate an acute abdomen and to attain therapeutic judgment. It is small, compact, can be read with advantage in a few hours, and will serve as a handy reference book for student, general practitioner, and specialist alike. It is recommended for perusal or study by any physician encountering acute abdominal conditions in practice. It is a valuable contribution to medical literature and deserves to be in the library of practicing physicians.

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CHILDREN'S RADIOGRAPHIC TECHNIC. By Forrest E. Shurtleff, R.T., The Children's Medical Center, Boston, Massachusetts. Lea & Febiger, Philadelphia, 1951. 80 pages. 32 illustrations. \$3.75.

This modest volume is designed as an aid to technicians and physicians who are familiar with radiographic procedures in general but who, nevertheless, have difficulty in obtaining satisfactory films of the non-cooperative children whom they must occasionally examine. The author's experience is based upon a large number of studies at the Children's Medical Center in Boston.

The chief contribution of this book is a section of 25 pages quite thoroughly outlining rapid exposure techniques for different parts of the body and for children of varying ages. This section is worth more than the price of the book for those without the time or experience to make their own exposure charts.

There are a number of helpful suggestions for positioning and immobilizing small patients. There are good directions for obtaining rhinograms and tracheograms.

The volume does not quite fulfill the publisher's announcement that it is a thorough presentation of the radiographic studies of diseases and anomalies of children.

* * *

A PRIMER FOR PSYCHOTHERAPISTS. By Kenneth Mark Colby, M.D., Adjunct in Psychiatry, Mount Zion Hospital; Clinical Associate, San Francisco Institute of Psychoanalysis. The Ronald Press Company, New York, 1951. 167 pages. \$3.00.

Like most technical procedures, psychotherapy is best learned under the supervision of an experienced therapist. The author of this little volume on psychotherapy admits that he is not presenting anything which is new and unique, but rather he addresses himself to beginners in this field: internists and residents in psychiatric hospitals and clinics, clinical psychologists, psychiatric social workers, and practicing psychiatrists (for the latter, obviously suggesting that they adopt methods and techniques recommended by him). He explains his approach as essentially psychoanalytic, but the actual procedures he describes are far from the orthodox classical psychoanalytic techniques in that communications from the patient are not so much free association, there is less emphasis on the interpretation of dreams, and the therapist, in general, is more "active." Following a brief description of basic theory, the organism, the ego, the environment, and the kind of patient who comes to the psychiatrist, the author emphasizes "in abstraction," the "most suitable" and the "less suitable" type for therapy, and the requirements and qualifications of a good psychotherapist. Such practical considerations as the length of interview, how to handle tardiness on the part of a patient, attempts of the patient to prolong the interview, the use of the couch, what to do when the patient weeps, when he offers gifts, whether or not to take notes during the interview, etc., are presented.

The technique of the first interview is described in detail with several simple clinical examples, with emphasis being on two aims, "to formulate from the facts a working clinical and dynamic diagnosis, and to acclimatize the patient to the interview methods and procedures of psychotherapeutic

work." To accept a patient for treatment is generally not difficult if the patient expresses a wish and need for treatment, but the author's examples of when he declines to treat some patients are not so convincing. Patients sometimes express a conscious unwillingness to continue under psychiatric care, but when this is adequately handled therapy may proceed. The author emphasizes, however, and rightfully so, that one should not threaten a patient into therapy. Very practical problems, such as what to do about a patient who requests a prescription for drugs and how to handle relatives, are discussed in a realistic and helpful fashion. The author regards the latter problem as a "mixed blessing," and he emphasizes that "no friend or relative of the patient in therapy should be seen by the therapist without the spoken knowledge and permission of the patient." The middle course of therapy is discussed in terms of the value of interpretations, how and when they are present, in what dosage, how resistance is handled and modified, and the meaning and handling of the "transference." The last chapter deals with the modified methods of treatment of the "schizophrenias." This is rather brief and sketchy, and refers essentially to those cases who are regarded as "ambulatory" or "latent" that one may see in office practice rather than in hospital work.

The author's style is simple and direct and without pretense. He emphasizes the limitations of psychotherapy, and warns the neophyte not to set his goals too high. This volume can be well recommended to the beginner in psychotherapy if he will constantly keep in mind that there is no substitute for supervision.

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ALLERGY IN RELATION TO PEDIATRICS. By Bret Ratner, M.D., Professor of Clinical Pediatrics (Allergy) and Associate Professor of Immunology, New York Medical College. An official publication of the American College of Allergists. Bruce Publishing Company, St. Paul, Minn., 1951. 228 pages. \$3.75.

The subject matter of this volume has been prepared by 16 well qualified pediatric allergists, all of whom are connected with pediatric departments in large universities or teaching hospitals, located in various sections of the United States, where they have the opportunity of seeing large numbers of allergic children.

In the reviewer's opinion, this book is invaluable to the pediatrician, for it is a well recognized fact that he is dealing with allergic conditions in from 30 to 50 per cent of his patients, depending on the locale in which he is practicing.

The contents include specialized knowledge of the fundamentals of allergy, and present well organized discussions on accepted methods of investigation and treatment. Several chapters merit special comment. Dr. Bret Ratner introduces the subject by giving a brief but very comprehensive chapter on "The Genesis of Allergy." The chapter by Dr. M. Murray Peshkin—"Critical Evaluation of Diagnostic Test for Sensitization in Infancy and Childhood," is of particular interest at this time. He clarifies and properly evaluates the role that skin tests play in the study of the allergic child. He discusses each phase of the study in order of its importance, namely: history, physical examination, laboratory procedures for determining endocrine dysfunction, blood studies, x-rays, and lastly, various methods of testing with allergens, including skin tests. Dr. Lewis Webb Hill, in his chapter on "Significance of Skin Tests," also emphasizes the fact that skin tests are helpful but certainly not infallible. Dr. Ben F. Feingold demonstrates with very interesting graphs the dual role infection plays in allergy. He, also, briefly reviews the literature on that subject. The remaining chapters maintain the high standard exemplified by the ones reviewed above. The volume is extraordinarily useful due to the splendid bibliography prepared by each contributor.